VOLUME XXI MARCH 1928 NUMBER 3

Southern Medical Journal

Journal of the Southern Medical Association

Published monthly by the Southern Medical Association, Empire Building, Birmingham, Ala. Annual subscription $4.00. Entered as Second-Class Matter at the Post Office at Birmingham, Ala., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of Oct. 3, 1917, authorized Dec. 20, 1921.

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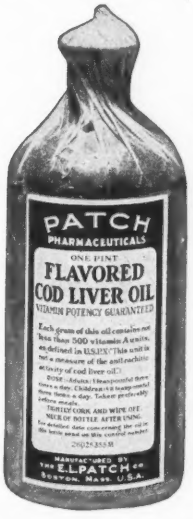

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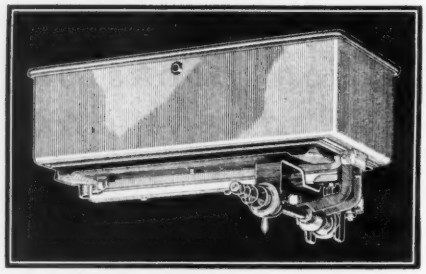

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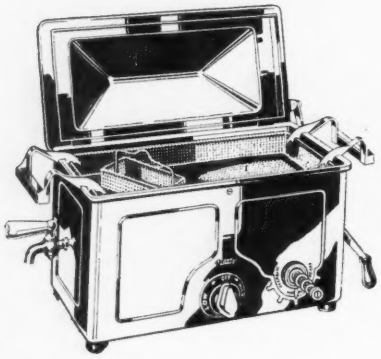

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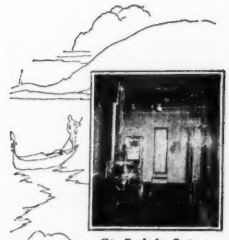
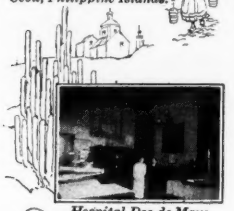
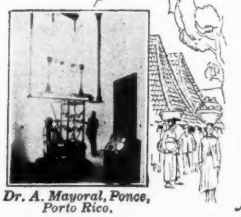


St. Luke's International Hospital, Tokyo, Japan.

Southern Islands Hospital, Cebu, Philippine Islands.



Hospital Dos de Mayo, Lima, Peru.



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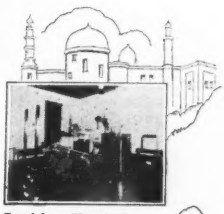
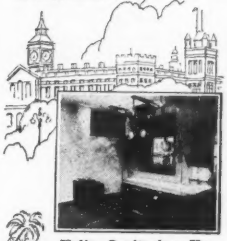


Lewisham Hospital, Sydney, Australia



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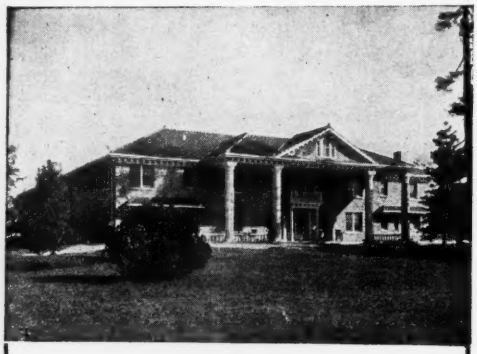

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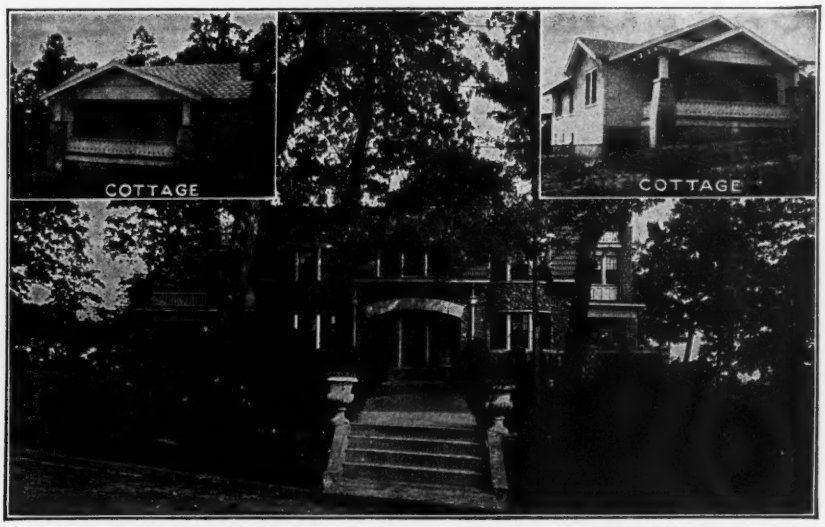

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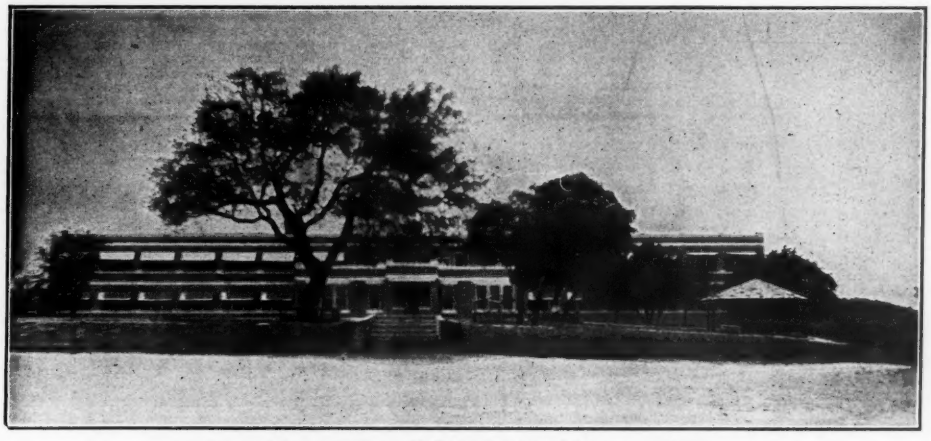

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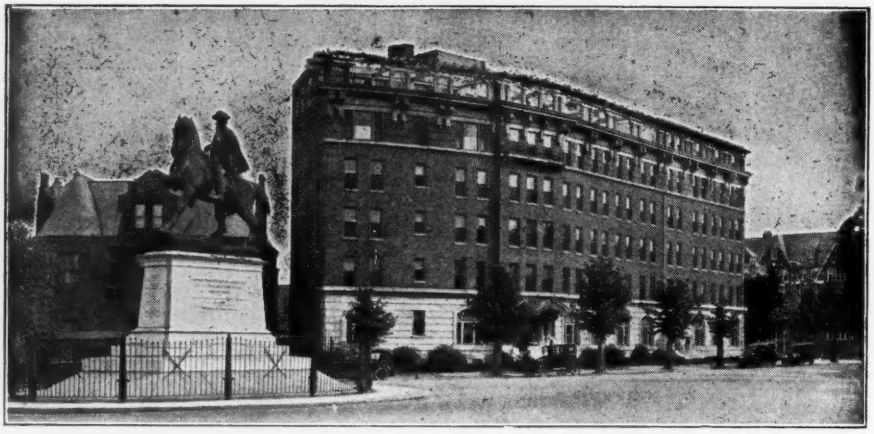

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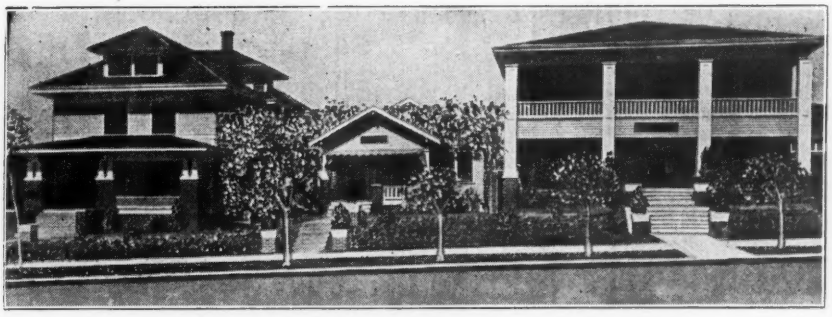

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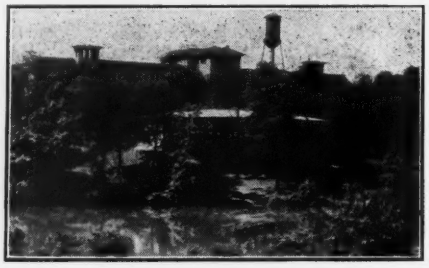

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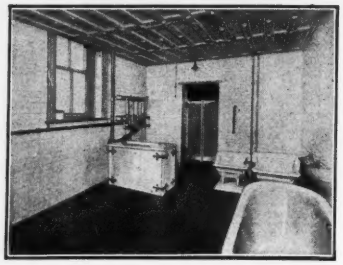

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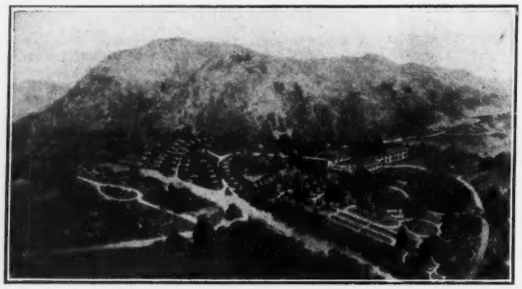

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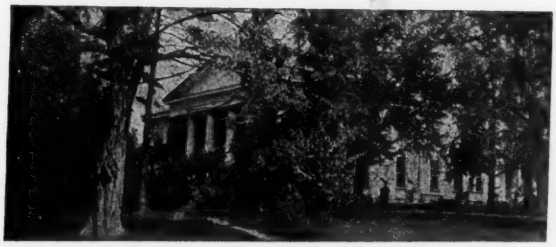

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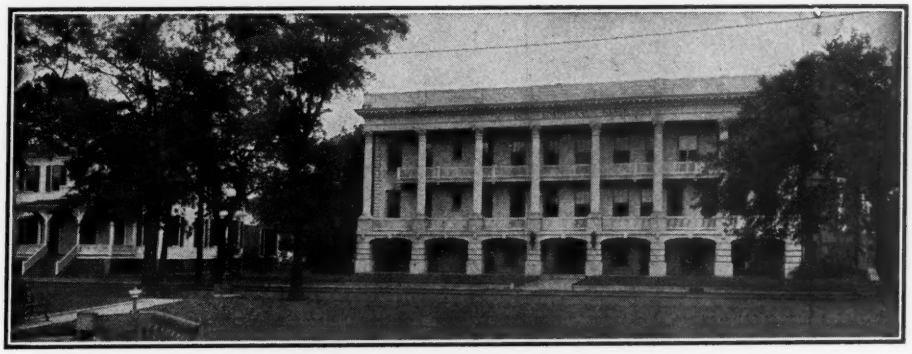

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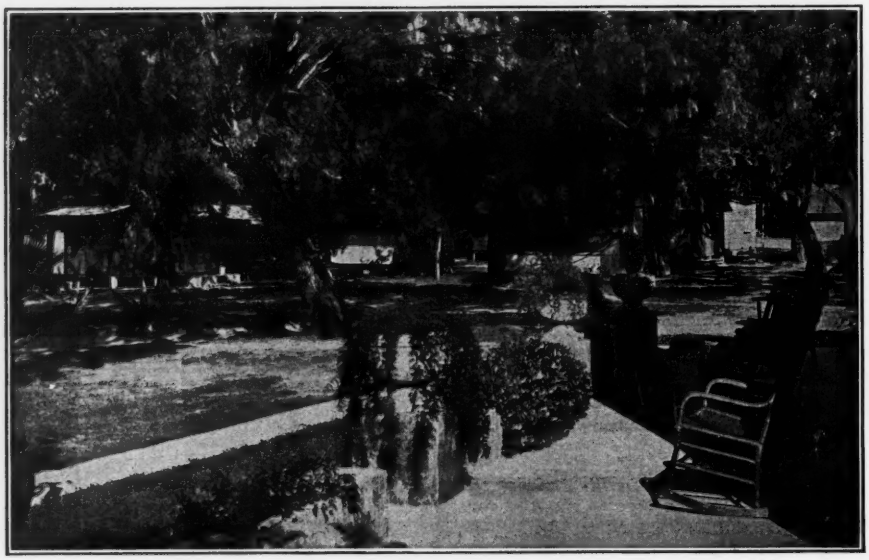

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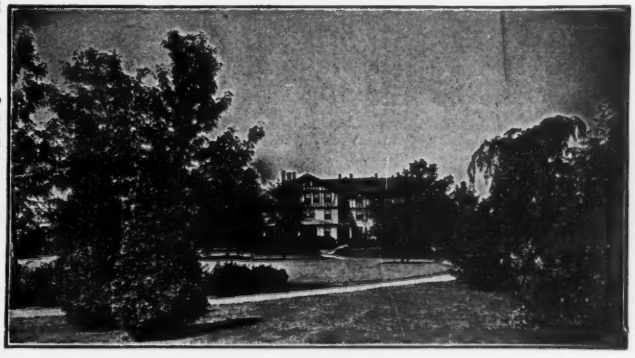

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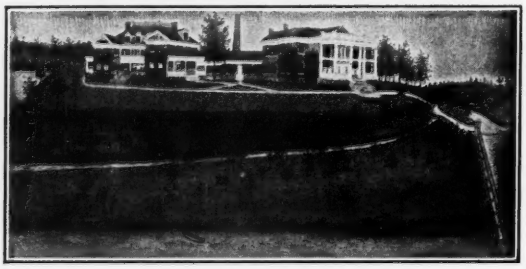

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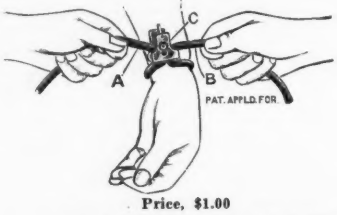

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Volume XXI MARCH 1928 Number 3

CERTAIN DISEASES OF THE ORAL MUCOUS MEMBRANE AND VERMILION BORDERS OF THE LIPS*

By BEDFORD SHELMIRE, M.D.,
Dallas, Texas.

Diseases of the oral cavity may be divided into surgical and non-surgical. The importance of the former has necessitated the development of a specialist in this particular field of medicine, the oral surgeon. His achievements during the past decade are ample proof of the need of this specialist. At the present moment he has established himself as a necessary adjunct to our complicated system of healing.

The non-surgical conditions of the oral cavity have received but meagre attention in the literature and many of the frequently occurring disturbances of the oral mucous membrane pass the general practitioner unrecognized. When it is remembered that many of the constitutional diseases may have their initial visible manifestation in the oral cavity, the importance of this field of medicine may be apprehended. Among these may be mentioned the raspberry tongue of scarlet fever; Koplik's spots of measles; the oral hemorrhages, ulcerations and infiltrations of the various leukemias; the glossitis of pernicious anemia and the ulcerations of agranulocytic angina; the stomatitis of pellagra and the hemorrhages of scurvy; and a host of other conditions from the pinhead white oral tubercle of miliary tuberculosis to the petechial hemorrhage of bacterial endocarditis.

The past has produced the oral surgeon, a specialist skilled in the treatment of surgical conditions of the oral cavity; the future will demand that every physician be well versed in the diagnosis and treatment of the many non-surgical conditions of this same cavity.

*Read in Section on Dermatology and Syphilology, Southern Medical Association, Twenty-first Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

STOMATITIS FROM DRUGS

A large number of drugs are capable of producing cutaneous eruptions. Scarcely a single remedy has escaped blame for the causation of some cutaneous exanthem. With greater knowledge of the eruptions provoked by the ingestion or intravenous injection of drugs, we are now seeing more oral lesions due to this cause, and apparently correctly diagnosing some cases of hitherto unexplained stomatitis. Routine examination of the oral cavity in cases of dermatitis medicamentosa shows this region to be frequently affected. Knowledge that the oral cavity alone may be affected by such drugs prompts us at least to suspect certain medicaments and inquire as to their ingestion. Drugs which are most frequently found to cause oral lesions are: the anti-syphilitics (mercury, bismuth, arsphenamin), the analgesic anti-pyretics (antipyrin, acetanilid, and phenacetin), the barbital group (including veronal and luminal), the salicylates and phenolphthalein compounds, although other drugs are rarely capable of causing oral lesions.

Mercury.—This drug is capable of causing morbilliform, scarlatiniform, papular, urticarial and erythema nodosum-like lesions on the skin. A troublesome soreness and hyperemia of the pharynx with macules on the soft and hard palate has been recently observed in one of our patients treated with mercurial inunctions. The various types of mercurial stomatitis are too fully treated in the various texts to demand space here.

Arsphenamin.—An acute arsphenamin dermatitis may be morbilliform, scarlatiniform, vesicular, bullous, lichenoid, purpuric, urticarial, pigmentary, and even erythema nodosum-like lesions have been reported. In the later stages a generalized exfoliative dermatitis may result. An arsphenamin stomatitis may occur alone or in association with a cutaneous eruption. The mucous membrane, in well developed cases, is dry, hot, red and shows varying degrees of exfoliation. In contrast to mercurial stomatitis,

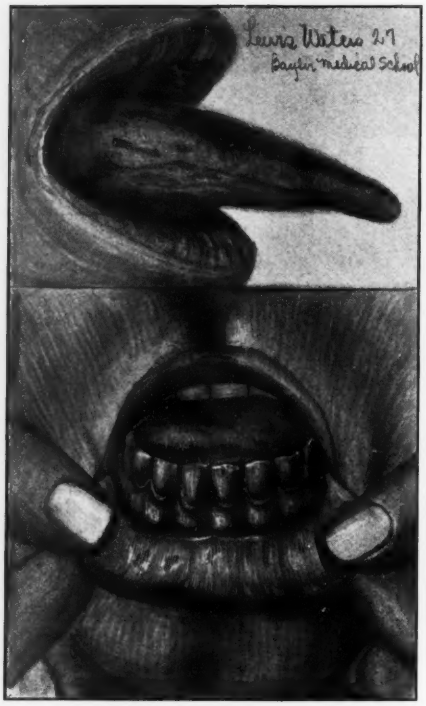

Fig. 1
Bismuth stomatitis. Pigmentation of lips and tongue infrequent.

the flow of saliva is decreased and there is no odor. In the early stages of an arsphenamin dermatitis, macules, hemorrhages and vesicles are noted on the mucous membrane in conjunction with the cutaneous eruption. In a case of mild arsenical dermatitis observed by the author, pea to dime-sized bluish-colored pigmentations appeared on the vermillion and inner surfaces of the lips. These resembled the pigmentations of the oral mucous membranes caused by silver, lead, bismuth, and occasionally by phenolphthalein and drugs of the antipyrin group. Similar polychromatic macules occurring on the glabrous skin after arsphenamin injections have been reported by other observers.

Bismuth.—A blue to bluish-black pigmentation of the gums is noted in patients treated with bismuth. This pigmentation, often closely resembling the "lead-line," but more uniform and not so stippled, begins at the free borders of the gingivae and with repeated injections of the drug gradually spreads towards the base of the gum. Pea to dime-sized faint, bluish-colored macules are occasionally observed on the inner surface of the lips and sides and under surface of the tongue. The incidence of bismuth stomatitis is high, fully 10 per cent of the patients at Baylor Clinic thus treated showing this form of pigmentary stomatitis with gingival irritation (*Fig. 1*). The disappearance of this pigmentation after cessation of bismuth therapy is slow, if at all, months frequently elapsing before a mild pigmentation of the free borders of the gingivae completely disappears. On again beginning the drug, this pigmentary stomatitis rapidly reappears. In the severer forms of bismuth stomatitis, ulcerations, indistinguishable from those caused by mercury, are not infrequently encountered.

Antipyrin, Acetanilid, Phenacetin, Pyramidon, and other drugs of the Antipyrin Group.—These drugs give rise to morbilliform, scarlatiniform, vesicular, bullous, hemorrhagic, urticarial and "fixed" eruptions. The most characteristic feature of this group of drugs, along with phenolphthalein, is their tendency to cause eruptions of the buccal cavity and genitalia, and for pigmentations of a violaceous color to follow erythematous and urticarial lesions of the skin. In patients sensitive to such drugs, it is not infrequent to find oral lesions alone or associated with genital lesions. The manifestations in the oral cavity vary from congestion of the pharynx, swelling of the tongue and edema of the lips resembling angioneurotic edema, to vesicular and bullous lesions followed by erosions and deep ulcerations. A peculiar bluish pigmentation of the anterior part of the tongue and an apparent superficial atrophy of this organ has

Fig. 2
Stomatitis from luminal.

Fig. 3
Stomatitis from phenolphthalein.

been reported to have followed repeated attacks of antipyrin glossitis. Greyish-white papular lesions of the oral cavity resembling lichen planus have been reported by other observers. In chronic acetanilid poisoning, seen in the so-called "acetanilid habitués," a peculiar cyanosis of the lips and buccal mucous membrane results from the formation of methemoglobin.

Barbital Group.—Drugs of this group produce cutaneous eruptions similar to those provoked by members of the antipyrin group. In the oral cavity, luminal may produce lesions varying from a mild congestion and edema to vesiculations and bleb formation, followed by erosions and ulceration. The accompanying illustration (*Fig. 2*) shows extensive vesiculation and ulceration of the oral mucosa in an epileptic sensitive to luminal. No cutaneous rash was present in this case. We have observed a physician who showed herpetic lesions of the lips and glans penis after each ingestion of veronal. Other drugs of this group (for example, sulphonal, trional) are said to cause similar oral and cutaneous manifestations. Oral lesions produced by this group of drugs are clinically indistinguishable from those produced by phenolphthalein and members of the antipyrin group.

Salicylates.—Drugs of this group cause various types of cutaneous eruptions, and erosive lesions of the buccal mucous membrane and glans penis. I have seen extensive ulcerations of the tongue and soft palate follow the intravenous injection of sodium salicylate for rheumatism. Edema, vesiculations and superficial erosions of the mucous surface of the lower lip were noted in a case similarly treated. Empirin compound (phenacetin?) also caused an identical eruption in this same patient. In a third subject, yellowish, pea-sized papular lesions were noted in the same location following the oral administration of sodium salicylate. In one case, questionable ulceration of the pharynx was noted after salicylates.

Phenolphthalein.—Various types of eruptions are observed after the ingestion of phenolphthalein in a patient who has an idiosyncrasy for this drug. The most characteristic cutaneous eruptions provoked, however, are erythematous, urticarial or bullous lesions which leave dime to dollar-sized violaceous plaques at their former sites. Oral and genital lesions, independent of cutaneous eruptions, are frequent. We have recently seen a diagnosis of pemphigus made in a boy, sensitive to phenolphthalein, who presented extensive bullous lesions of the mouth and skin. Polychromatic macules at the sites of former bullae gave a clue to the diagnosis. A test dose of phenolphthalein caused a return of the bullous lesions within 24 hours.

The ingestion of small doses of phenolphthalein as a laxative by a sensitive individual may cause an alarming reaction. Intense swelling of the tongue and lips, of angioneurotic characteristics, has been observed. The most frequent lesion, however, is the appearance of vesicles on the vermillion border and mucous surfaces of the lip. Due to heat and moisture of the part, erosions and secondary ulcerations take place. Intense congestion of the pharynx may be present. A peculiar bluish discoloration, similar to the polychromatic macules of the skin, has been

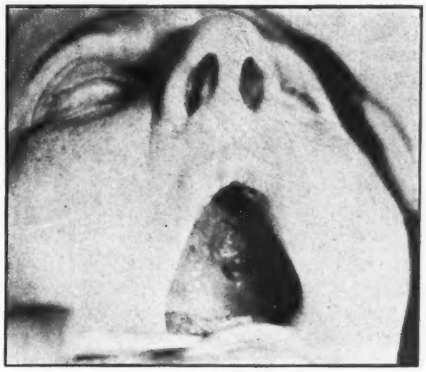

Fig. 4
Bromoderma (Collection, Dr. L. McCafferty).

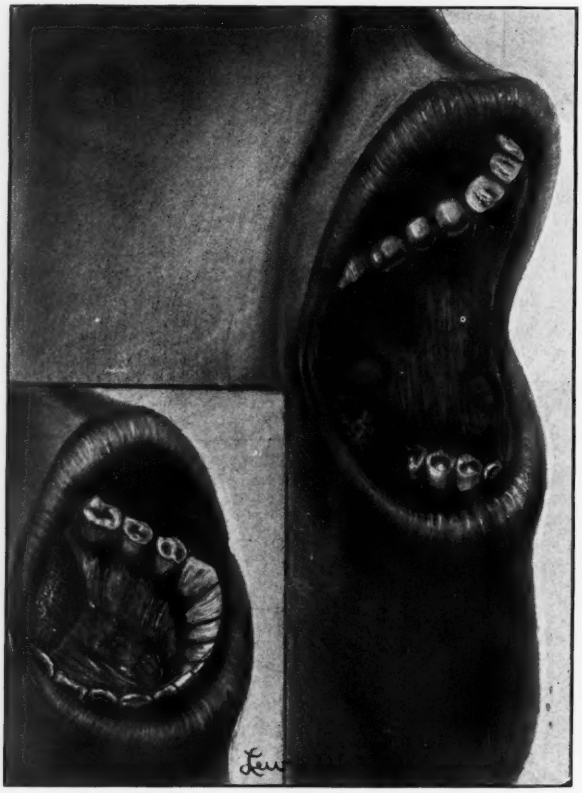

Fig. 5
Vicarious menstruation.

reported by other observers, as have ulcerations on the tongue and in the pharynx.

The accompanying illustration (*Fig. 3*) depicts a patient in whom the oral eruption was induced seven different times by a test dose of the drug. With each new group of students in the clinic, one phenolax wafer was given this patient and the eruption immediately appeared, healing spontaneously within ten days after cessation of the drug. The sensitiveness to phenolphthalein remained stationary in this patient. Idiosyncrasies to a given drug may increase, diminish or entirely disappear. This patient was apparently sensitive to no other drug, for he was given, in order named, the following drugs, and none of them produced any oral irritation or cutaneous eruption: luminal, antipyrin, phenacetin, acetanilid, sodium salicylate, bromides, veronal and iodides.

Many other drugs are at times capable of exciting inflammatory or pigmentary changes in the oral mucous membrane. The prolonged ingestion of silver causes the deposit of silver salts in both the skin and mucous membrane (argyria). The "blue line" of lead and greenish or red line of copper are known to all. McCafferty is shortly to report a case of fungating tumors of the hard palate from bromides. Hemorrhagic and bullous lesions of the oral cavity from iodids are not uncommon.

DISEASES INCIDENT TO MENSTRUATION

Vicarious Menstruation.—Vicarious bleeding from the gums with hemorrhages into the submucous tissues of the cheeks, lips, tongue and palate is occasionally observed at the menstrual period. The accompanying photograph depicts a patient in whom bleeding from the gums and hemorrhages at various portions of the oral mucous membrane were observed at each menstrual period. The patient presented an infantile type of uterus and had never menstruated from the normal channel (*Fig. 5*).

Salivation.—Definite relation between the genital organs and the salivary glands is shown by the moderate to marked increase in flow of saliva which is not infrequently observed at this period. Cases have been recorded where this symptom was a distressing one.

Stomatitis.—Aphthous stomatitis is not infrequently observed during the menstrual period. Routine examination of the oral cavity at this period will often show aphthae to occur regularly with each menstruation. The author has observed one marked example of this type of aphthous stomatitis. Aphthae appeared in the mouth regularly three days before each menstrual period. The number and severity of the ulcerations increased to the cessation of the menstrual flow, then rapidly disappeared to reappear again three days before the next menstrual period. Chronic affections of the oral cavity, such as lingua geographica, and chronic gingivitis from Vincent's disease, usually show an exacerbation at this time.

Fig. 6
Menstrual herpes.

Menstrual Toothache.—Menstruation is occasionally ushered in by a toothache of the neuralgic type, which appears suddenly several days before the menstrual period. This menstrual toothache has been shown to be due to a congestive hyperemia in the periodontal membrane about a pulpless tooth from the circulatory changes involved in menstruation.

Menstrual Herpes.—Recurrent herpetic and other types of eruptions of the glabrous skin are occasionally noted in women at the menstrual period (dermatitis dysmenorrheica). The accompanying illustration shows a menstual herpes, recurrent at every menstrual period for a number of years (*Fig. 6*).

Erosion of the Lips at Menstruation.—A rather unique case of extensive erosions of the lips at the menstrual period has recently been seen through the courtesy of Dr. W. A. Clark of Houston, Texas.

Case Report.—Mrs. C. M. B., aged 31, complained chiefly of ulcerations of the lips, of four years' duration. Four years previously, just before the menstrual period, the patient noticed a small erosion of the lower lip. This lesion healed at the cessation of menstruation but recurred seven or eight days before the next menstruation, and, except in one month, had never failed to recur seven or eight days before each menstrual period, and had never failed to heal completely within three days after each monthly sickness. During this four-year period the lesions had become more extensive each month. By the end of the third year, the entire lower lip was the seat of confluent erosions at each menstrual period. Of late, the upper lip had become similarly involved. The erosions, as shown in the accompanying illustration (*Fig. 7*), were often covered with an adherent pseudomembrane or crust. Removal of the crust caused profuse hemorrhage. Spontaneous and complete healing occurred in the intermenstrual period. There was no history of drug ingestion at or previous to the menstrual period. At no time have vesicles been found and the patient states that the lesions always begin as erosions. The eruption has not been noticeably influenced by treatment.

LESIONS INCIDENT TO PREGNANCY

Gingivitis Gravidarum.—A special form of gingivitis, beginning about the fourth month of gestation and lasting until after parturition or well into the period of lactation, is frequently observed. This type of gingivitis is characterized by swelling and diffuse hyperemia of the marginal gum tissues, often with crescentic-shaped outlines. Tenderness of the gums is frequently marked and profuse bleeding often occurs on brushing the teeth. We have seen one case of this type erroneously diagnosed as Vincent's gingivitis, and considerable damage was done by scaling the teeth before a proper diagnosis was made. In marked cases of gingivitis gravidarum, extreme hypertrophy of the gingivae may occur (hypertrophic gingivitis of pregnancy), giving rise to polypus-like excrescences, which often cover the crown or cutting edge of a tooth or several teeth with proliferating masses of tissue. These hypertrophic tumors usually recede spontaneously after labor.

Benign new growths (epulides), caries, neuralgic dental pains, transitory benign plaques of the tongue, and alteration in the color of the teeth are often noted in pregnancy. These benign tumors and the transitory lingual plaques often disappear with the termination of pregnancy, caries and the neuralgic pains cease and the teeth again take on their normal color.

Fig. 7
Erosions of the lips recurrent with each menstrual period. (Patient, Dr. W. A. Clark).

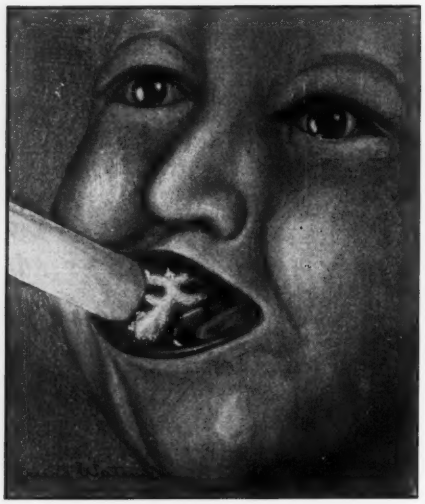

Fig. 8
Thrush stomatitis.

SUPERFICIAL AND DEEP YEAST INFECTIONS

Thrush.—Thrush, sore, or "white mouth" is a type of superficial mycotic stomatitis and gingivitis most frequently observed in nursing infants during the first few weeks of life. The condition, usually limited to the oral cavity of these infants, is frequently asymptomatic, but may spread to the skin of the affected child and the nipples of the nursing mother. The disease is most frequently encountered in bottle-fed infants, especially in foundling homes where it may occur in epidemic proportions, and is caused by the deposit of an air-borne yeast plant, the *öidium albicans* (*Monilia albicans*) upon the nipples and other feeding utensils. In the oral cavity the condition appears as pea to larger sized patches or irregular branching streaks of snow whiteness, which closely resemble curdled milk deposited upon a macroscopically unaltered mucous membrane (*Fig. 8*). The velvety growth caused by thrush, in contradistinction to other superficial yeast infections observed in the oral cavity, is not firmly attached to the underlying tissues and can therefore be easily wiped away. These small patches occasionally spread and coalesce to form larger plaques which take on a dirty grey appearance and are accompanied by an increased flow of saliva. The disease may begin at any part in the oral cavity. The sites of predilection are the cheeks, hard palate, and the margins of the tongue. In extreme cases the entire oral cavity may be involved.

The diagnosis is usually readily made by resort to the microscope. The treatment of choice is the application of 1 per cent gentian violet or a 2 per cent ferric chloride solution.

OTHER SUPERFICIAL YEAST INFECTIONS

Macroglossia Mycotica.—Castellani[1] has observed several cases of a peculiar enlargement of the tongue (macroglossia blastomycetica) due to a yeast organism. The tongue in these cases was greatly enlarged, occasionally painful, and the patients often experienced difficulty in eating and speaking. Deep scrapings of the tongue surface after drying and painting with iodine revealed a yeast-like organism (*Monilia macroglossiae Castellani*). This same observer[2] has reported three cases of a diffuse stomatitis from which the *Cryptococcus graciloides* and *Bacillus vermiculoides* were isolated. In these cases slightly elevated whitish patches, often resembling incipient diffuse leucoplakia, were found covering various parts of the oral cavity.

Fihlo[3] has recorded a case of chronic macroglossia mycotica resembling those reported by Castellani. White spots were first noted on the tongue. After a number of years these spots became confluent and the tongue greatly hypertrophied. The isolated organism was given the name *Monilia aldoi.*

Zeisler[4] has recently reported a mycosis of the lips and tongue, producing macrocheilia and macroglossia. In this case a yeast-like fungus (cryptococcus) and a mould were demonstrated.

In the February, 1927, issue of this Journal, Dr. E. Lloyd Jones of Wheeling, W. Va., recorded a torula infection of the oral cavity, evidenced by nodular, non-inflammatory swellings on the fauces and soft palate. After several months these nodular growths ulcerated, causing destruction of the soft palate and uvula.

Monilia Infections (Exclusive of so-called "Thrush").—Engman and Weiss[5], 1920, reported a laborer, aged 53, who presented over the entire left side of the buccal mucous membrane, invading somewhat the right side, a thickened mat of whitish filiform projections which was sharply defined against a healthy mucous membrane. Local treatment was of no avail. Even cauterization did not stop peripheral extension of the process. The *Monilia candida* was isolated from the verrucous process.

Zeisler has recently observed a yeast infection

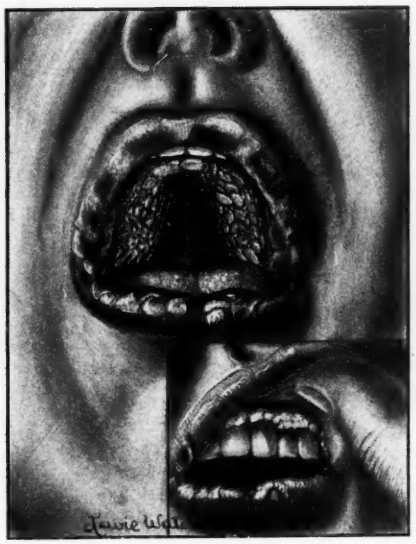

Fig. 9, Case 1
Monilia infection of the oral cavity.

of the tongue in a woman, aged 56, which was found to be due to the *Monilia pinoyi*. The tongue was enlarged and covered with narrow branching and arborizing white lines or streaks, slightly raised above the surface, adherent, and producing a geographic appearance.

Two cases of chronic, widespread Monilia infection of the mouth have been observed by the author in the past eighteen months.

Case 1.—A man, aged 43, complained of "white patches" and soreness of the mouth. According to the patient's history, he had experienced recurrent white patches and intermittent "soreness" of the mouth for a period of ten years; yet previous to one year the condition was never serious enough to necessitate the services of a physician. At that time the condition suddenly became exaggerated, the number of white areas became so numerous as to cover almost the entire oral cavity, salivation was increased, and mastication was accompanied by severe pain. On the patient's initial visit to our office, the oral condition was as depicted in the accompanying illustration. At this time, the entire oral mucosa, exclusive of the dorsal surface of the tongue, was covered with a diffuse and patchy whitish growth. The mouth could not be fully opened and there was marked salivation and tenderness of the affected parts (*Fig. 9*). The gums in their entire extent were covered with a hypertrophic whitish growth several millimeters in thickness. Similar lesions appeared on the under surface of the tongue, buccal surface of the cheeks and the vermillion border of the lips. On the hard and soft palate these small whitish adherent patches and arborizing lines separated by normal mucous membrane presented a strikingly artificial appearance. The lesions in general suggested a diffuse leucoplakia of map-like arrangement. Local treatment was of no avail. Cauterization of the affected parts resulted in healing; yet, within a few weeks, the growth would extend from the periphery to cover the healed areas. Iodides by mouth and the intravenous injection of large doses of Lugol's solution were of temporary benefit. After the fourth intravenous injection of Lugol's solution (doses of 3 cc. each at two-day intervals) the lesions on the hard palate rapidly decreased in size, leaving the palate stippled with pinhead whitish dots closely resembling the area on the right side of the upper lip in *Case 2*. A slight thrombosis of the injected vein after the fourth injection of Lugol's solution brought about the patient's refusal of further treatment. The punctate lesions then rapidly increased in size to gain their former appearance.

Laboratory Findings.—The finding of yeast-like organisms in scrapings from the oral cavity has little importance, since these fungi are often seen in normal mouths. After carefully cleansing and drying parts of the affected mucous membrane, the areas were painted with the tincture of iodine and bits of the whitish membrane removed for microscopic examination and culture.

Microscopic examination of bits of membrane macerated in 10 per cent potassium hydroxide solution yielded myriads of round and ovoid yeast cells. Transplants of bits of this membrane to glucose agar tubes resulted in almost a pure culture of this fungus. In order to test the pathogenicity of this yeast-like organism for the human, a pure culture of this fungus was rubbed into a lightly scarified area 1 cm. square on my left forearm. The inoculated and surrounding area was covered with a piece of rubber dam 3 in. square and firmly held by adhesive tape. Within forty-eight hours an acute vesicular dermatitis resulted over the entire covered area. This was accompanied by lymphangitis of the forearm, left axillary adenitis and rise of temperature. A pure culture of the organism was obtained from the contents of these induced vesicles, proving the pathogenicity of the fungus for the human. Complete healing resulted in about one week under rest and hot bichloride soaks.

Case 2.—D. A. J. was a white man, aged 75 years. Since the age of 25, the patient had suffered from recurrent attacks of white patches and soreness in the mouth. During this period the mouth was never entirely free of lesions; yet inconvenience from the oral condition was experienced for only one or more months several times each year. During the past few years the oral vestibule had been so seriously involved that the patient had been unable to partake of solid food and his general nutrition had suffered greatly. The entire oral cavity, with the exception of the gums, was involved, the eruption in the remainder of the oral cavity appearing like that pictured on the lips in the accompanying illustration (*Fig. 10*). This case closely resembled the one above reported with the exception that the mucous membrane between the affected areas showed an intense congestion, almost simulating the maroon-red of pellagrous stomatitis. Stained fresh preparations from various pieces of this membranous growth revealed many yeast cells and various bacilli and cocci common to the oral cavity.

For proper identification of the yeast-like growths, isolated from the oral cavity of these two patients, cultures were sent to Dr. Fred Weidman of the Labo-

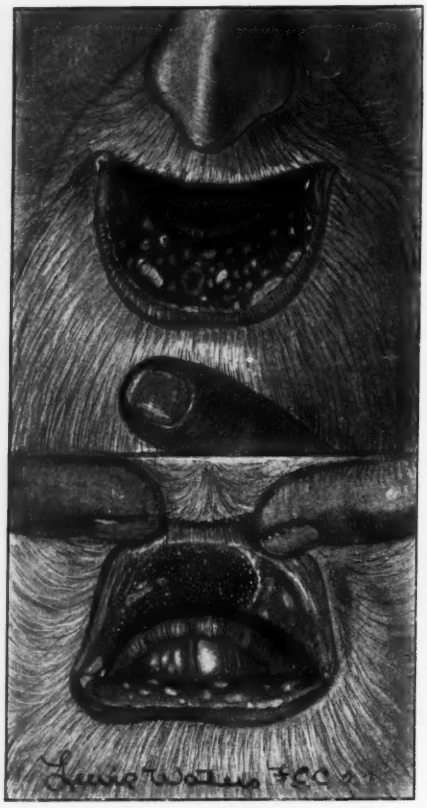

Fig. 10, Case 2
Monilia infection of the oral cavity.

ratory of Dermatological Research of the University of Pennsylvania. He has kindly furnished me with the subjoined preliminary report:

"The two strains appeared identical on glucose agar (Sabouraud's glucose formula) and employing Chassaing peptone. In seven days, colonies were 1 cm. in diameter, sharply marginated, strongly creamy-yellow, and had a smooth, glistening surface. That is, there was nothing distinctive for determinative purposes; the texture was the thick pasty one common to many different yeast species. When three months old, the appearance was the same except that the colony was twice as large, the surface appeared less glistening, the texture correspondingly drier or even more pasty, and the color was an even deeper creamy-yellow, approaching a brown. The deeper parts of the colony did not extend deeply into the substrate as is so often the case with the monilias (Myzelorrhizodes of Ota) except with three of the numerous colonies studied; in the latter there were extensive downward prolongations into the substrate, even to the wall of the test tube.

"Under the microscope, there were but slight differences in morphology of the cells from the two strains. There were no true hyphae. Cells were medium-sized as yeasts go, spherical or slightly ellipsoidal, and contained one or two granules. Occasionally a fine, dancing granule was present in the vacuole. There was not a mucinous capsule around the cell (India ink technic). There were a few "pseudo-mycelia" in hanging drop culture of *Case 2*, but not in *Case 1*. But when pains were taken to take a thin stratum of the substrate at the extreme margin of the colony for examination, or the submerged portions immediately below the colony, long series of branching segments as well as chlamydospores were discovered similar to what is commonly figured for *Oidium albicans*. Ascospores could not be recognized in material grown upon plaster of Paris blocks and stained by Beauverie's method.

Animal tests were confined to material from *Case 1*. Generalized infection did not develop in either of the four guinea pigs injected intraperitoneally. There was a local subhepatic abscess formation in one animal and a local cutaneous abscess at the inoculation site in another.

"*Fermentation Tests.*—Organisms from the two cases behaved identically as tested in parallel at room temperature. They were comparatively inactive, affecting but four of the carbohydrates. They produced gas and acid in glucose within three days' time, and behaved similarly toward maltose, but a little less energetically. Such small quantities of gas and acid were produced in galactose that they were almost overlooked. They produced acid but no gas in saccharose, beginning in twenty-four hours and only at the surface of the medium; the amount at the end of five days was scarcely greater than that at the end of twenty-four hours. Other substances tested, dextrin, mannite, lactose, and salicin, were not affected. Gelatin was not liquified. There were no changes in litmus milk up to twelve days. Galactose was the particularly illuminating substance in connection with identification because the organism was so inert toward it, whereas the majority of other monilias act energetically upon it. Otherwise it would lie very close to *Monilia albicans* and the *Monilia alba* of Castellani. But this organism does not fit, biochemically speaking, any of those listed by Castellani and Chambers, and in the ordinary course of botanical events might justify the erection of a new species. This, however, is foregone in conformity with the present-day tendencies not to overburden medical and particularly mycological terminology with possible synonyms."

Blastomycosis (Deep or Gilchrist Type).—Blastomycocis of the oral cavity, exclusive of laryngeal blastomycosis, appears to be a distinct rarity. A cursory review of the literature has revealed but two cases thus far reported in the literature of this country. Copelli,[6] in 1913, reported a nodular blastomycetic lesion on the tongue associated with blastomycetic lesions of the feet. New,[7] in 1917, recorded a case of primary blastomycocis of the base of the tongue and pharynx. According to Castellani[8] oral blastomycocis has been investigated by Lutz and Splendore in South America. The skin eruptions in their cases were identical with those found in the common type of the malady, but

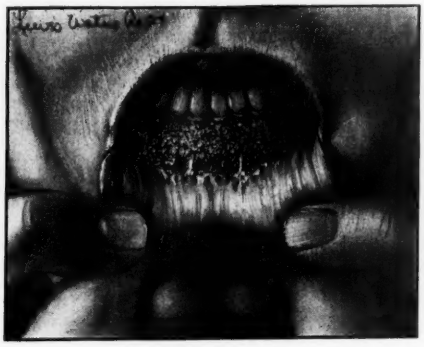

Fig. 11
Blastomycosis.

the infection spread to the oral mucosa, involving the lips, gums, soft and hard palates, giving rise to numerous small, verucoid, papillomatous or frambesiform patches, which later frequently underwent deep ulceration. The disease finally invaded the pharynx, nose, larynx, and bronchi and usually terminated fatally.

A case of oral blastomycocis, resistant to all treatment and with fatal termination, has recently come under our observation.

Case Report.—Miss M. L., white, aged 33, consulted our office concerning a growth on the lower gum of six months' duration. According to the patient's history, this growth had followed slight injury to the gum while brushing the teeth. Examination showed a sharply demarcated verrucous mass on the lower gum in the region of the incisor teeth, almost completely filling the lower labial vestibule (*Fig. 11*). The mass measured 2 by 3 cm. and was elevated about 1 cm. Several small sinuses exuding pus extended into the depth of the tumor. Syphilis, tuberculosis and new growth were ruled out by the negative Wassermann and therapeutic tests, and the appearance of the lesion as an indeterminate granuloma on microscopical examination of a piece of excised tissue. A tentative diagnosis of fungus infection, probably actinomycosis, was made. This case was presented for diagnosis at the clinical session of this Society at our Dallas meeting two years ago. At that gathering, no diagnosis was made; yet the above diagnoses were forwarded.

Shortly after this meeting the patient consulted Dr. Kenneth Lynch, now of the University of South Carolina, who succeeded in demonstrating the blastomyces in fresh specimen and on culture. The patient was again observed about one year later. At this time there was extensive ulceration of the entire lower jaw and several sinuses pointed on the chin, cheeks and neck. The patient was very emaciated and was suffering from an exhaustion psychosis. The daily intravenous injection of Lugol's solution (5 injections of 6 c.c. each in 100 c.c. of distilled water) gave temporary improvement. According to the history of a friend, who lived with the patient in a distant town, death occurred some months later from what her physician considered to be a systemic blastomycocis.

REFERENCES

1. Castellani, A.: Macroglossia Blastomycetica, Jour. Trop. Med. and Hyg., 28:216, 1925.
2. Castellani, A.: Stomatitis Cryptococco-Bacillaris, Jour. Trop. Med. and Hyg., 28:216, 1925.
3. Fihlo, P.: Macrogiossia Mycotica, Jour. Trop. Med. and Hyg., 30:8, Jan. 1927.
4. Zeisler, E. P.: Monilia Infection of the Tongue, Arch. Dermat. and Syph., 25:171, Feb. 1927.
5. Engman and Weiss: Monilia Candida Infection of the Mouth, Arch. Dermat. and Syph., 38:119, 1920.
6. Copelli, M.: Case Report, Jour. Cut. Dis., 31:51, 1913.
7. New, Gordon B.: Blastomycosis of the Tongue, J. A. M. A., 68:186, Jan. 20, 1917.
8. Castellani and Chambers: Manual of Trop. Med. Wm. Wood & Co., New York; p. 2084, 1919.

DISCUSSION (*Abstract*)

Dr. C. Augustus Simpson, Washington, D. C.—I predict that Dr. Shelmire's article will be a wonderful reference in future years.

I have never seen Fordyce's disease disappear quite so quickly as he says. In fact, I have never seen it disappear at all. But of course geographical tongue is constantly coming and going, with little response to any treatment.

The color he spoke of in pellagra is quite as characteristic to me as the dermatitis of the hands and neck. I liken the color to the meat of the watermelon in the mucous membrane lesions in pellagra. It is the most vivid red that one can see. Of course the menstrual eruptions we see often, and the eruption is usually of the herpetic type. Tongue and gum pigmentations we have seen very little of, except the bismuth discoloration.

The mucous cysts you have seen are not unusual, but quite interesting and alarming to patients. At times they become as large as an almond. I wonder how many of us have incised these cysts expecting a cure. I know of one case that was cut into a half dozen times, with prompt return, even after wiping the cavity out with carbolic. I think we are wasting time with treatment other than electric coagulation. I do not consider this lesion pre-cancerous or dangerous.

The little lakes or pools of blood on the lips are rather commonly met with. They are extravasation of blood in the tissues, surrounding a blood vessel, usually following trauma. Electric coagulation will cure these lesions in one treatment without danger. I do not consider them pre-cancerous, never having seen one undergo malignancy.

In angiomas of the mouth a well-equipped dermatologist will obtain excellent results. Many of these lesions are sent to us by surgeons who hesitate to cut them. Dr. Shelmire rightly considers any cutting operation dangerous. Coagulation is the ideal treatment. By this means the contents of the vessel are thrombosed and coagulated, after which the dried blood can be peeled or shelled out without hemorrhage. Coagulation is much quicker and more thorough than application of radium in these cases.

Ichthyosis mucosa is a very rare lesion. It is rare enough in the skin itself, and for it to occur on the mucous membrane, I think marks it as one of the most extraordinary cases shown today. I should not be surprised if the four children he has shown here are also examples of nevi hypertrophicus of the mucous membrane.

At the New Orleans meeting I spoke of the granu-

lating, velvety, sharply defined erosions of the mucous membrane very closely resembling the one Dr. Shelmire spoke of as pyogenicum surrounding the tooth. This lesion is seen in the male on the roof of the mouth or inner cheek as a buffy, red, granular erosion with sharp edges. No leucoplakia is present, but it tends to degenerate into a prickle-cell, fungating epithelioma that metastasizes and produces death. Some lesions last ten or fifteen years before metastasizing, often recur after radium or x-ray therapy, and electric coagulation offers the best chance of a cure. These eroded granular patches gradually and slowly spread over the mucous membrane as an advancing, elevated, sharply defined, parasitic edge. I have seen three or four such cases and I have considered them examples of Bowen's disease of the mucous membrane. I should like Dr. Shelmire to give his experience with such a lesion.

Dr. Joseph Goldberger, U. S. P. H. S., Washington, D. C.—Those appearances, that condition which Dr. Shelmire showed us this morning, come in the more severe stages of the disease. You do not ordinarily, and should not, expect to see it in the milder and earlier grades of the disease. If you do you will be very likely to be misled in your diagnosis.

The color is of great interest. We produce a condition that occurs spontaneously. In that condition the outstanding feature is a stomatitis. I have never been able quite to satisfy myself as to the distinctiveness of the tonic color at this stage. It is possible and quite probable that that arises from our limited experience. Consequently, we have hesitated. We have come to regard as very, very important that feature of the disease in the tongue.

Dr. Thomas W. Murrell, Richmond, Va.—An internist in Richmond has published several papers on pernicious anemia, and he states that achylia gastrica is frequently a part of the pathology of these cases. Might not some of the symptoms of the tongue in pernicious anemia be due to achylia gastrica?

Since in the lower animals food allergy is manifested in the intestinal tract, this same internist suggests that this may happen in humans and allergy play a part in some of these mouth conditions.

Dr. George B. Lake, Chicago, Ill.—I should like to emphasize the point of the development of the bubo in oral chancre. Though my experience has not been tremendous, the submaxillary bubo has been a feature of practically all the cases that I have seen.

In February, 1927, Dr. A. S. Warthin presented a paper before the American College of Physicians, in which he expressed the opinion that leukemia, Hodgkin's disease, mycosis fungoides and allied conditions are definitely malignant. He backed this up with statistics. He has had an enormous experience in pathology, and his statements are well founded and carry weight.

A few weeks ago, in Kansas City, I spent some time in Dr. Frank J. Hall's laboratory. He expressed the opinion that pernicious anemia is a malignant condition and said he had long felt that leukemia was malignant, and he had gross and microscopic specimens tending to bear out this statement.

The mouth lesions in leukemia and pernicious anemia struck me as being possibly a small bit of corroborative evidence along this line.

Dr. Howard Hailey, Atlanta, Ga.—Pemphigus of the oral mucous membrane and syphilitic cheilitis are two conditions worthy of mention.

The diagnosis of pemphigus is made, after frequent observations, by elimination. Syphilitic cheilitis may be mistaken for a dermatitis due to volatile oils in tooth paste.

An excellent treatment for cavernous angioma is the use of a small radium needle or 0.5 mc. radon seed placed in the center of the tumor.

Dr. Lloyd W. Ketron, Baltimore, Md.—I would like to ask Dr. Shelmire if he has examined histologically any of the varices commonly found on the lips of old people and spoken of as "blood blisters."

Dr. W. H. Mook, St. Louis, Mo.—Lesions of the mouth are difficult to diagnose in most instances. An accurate early diagnosis is always essential on account of the possible development of malignancy. If granuloma pyogenicum of any part of the mucous membrane of the mouth is diagnosed early, many malignancies may be prevented.

Many lesions of the mouth are congenital and familial. They are usually discovered when the patient develops cancerphobia, examines his mouth and finds a lesion which he had never seen before. These cases must be under observation for a long time before treatment of any kind is instituted.

Dr. Everett S. Lain, Oklahoma City, Okla.—I do not feel competent to add anything new to what Dr. Shelmire has said. I wish only to stress one thing he mentioned, which I have seen a number of times, namely: a bright red, burning, stinging, uncomfortable condition of the tongue and mucosa without any apparent etiology. Sometime ago I observed that it was more especially present in areas which were in constant contact with newly made dental plates. I began to take histories more carefully and to note that the most of these cases dated their origin to a few days after the new dental plates had been made. I eventually concluded that something in the dental plates was the cause. I inquired among my dental friends as to the composition of the rubber and eventually wrote to the manufacturers. One of them gave me a very courteous reply, which somewhat verified my conclusions, namely: that some of the cheaper rubber which was used in making of dental plates was colored with red oxid of mercury. Since that time I think I have noted that most of these cases have come from plates made by the "advertising, cut-rate dentists" who supposedly are using this cheaper material.

Dr. Shelmire (closing).—Time does not allow a discussion of all the oral affections presented here today. Some seventy-five lantern slides, depicting about fifty different oral conditions, were shown. In the paper presented for publication in our Journal only a few of the more common diseases of the oral mucous membrane were considered.

We are indeed indebted to Dr. Goldberger for his instructive discussion of the slides depicting pellagrous stomatitis. I have not been fortunate enough to see a case of Bowen's disease of the mucous membrane, as presented by Dr. Simpson.

TISSUE DIAGNOSIS IN THE OPERATING ROOM*†

By JOSEPH COLT BLOODGOOD, M.D.,
Baltimore, Md.

To increase accuracy and diminish the element of error, the diagnosis of tissue in the operating room by any rapid method of cutting and staining must depend upon its routine employment, whether this is essential for diagnosis or not. The method must not be used only as an emergency when diagnosis is essential.

The majority of pathologists prefer paraffin or celloidin sections which are well stained and can be studied at leisure twenty-four hours and longer after operation. Occasionally pathologists trained in this way are called in an emergency to make a diagnosis in the operating room from a rapidly obtained frozen section. If they have not prepared themselves for this, they at least fear a large element of error and usually prefer to postpone for a more accurate diagnosis.

If there is no danger in biopsy from a delay of twenty-four hours or longer after the excision of the piece or of the local growth, then there is no objection to waiting for these more carefully hardened and prepared sections.

There are many experienced surgeons and pathologists who fear this element of delay and whose experience teaches them that when tissue diagnosis in the operating room is a routine instead of an emergency occurrence, then the element of error in the interpretation of a section obtained in five or ten minutes is no greater than one obtained from a section carefully prepared with an interval of one or more days' delay.

There is other evidence in favor of tissue diagnosis in the operating room by those who have had large experience with both methods. The true morphology of the cell is better pictured in the frozen section of the unhardened tissue than of the tissue previously fixed in formalin or by any other method of fixation.

Since 1915, the demand for tissue diagnosis in the operating room has slowly increased, and in the past two years in a great many operating rooms the demand has been so great that provision has been made for its routine management.

Fig. 1 illustrates a simple table that can be moved from one operating room to another or placed in a small room near an operating room. On this table are all the things necessary to make and stain a bit of tissue or to examine cover slips from pus or any fluid obtained during an operation. The object of this table is to place the making of the section in or near the operating room, so that the operator himself can hand to the technician or the pathologist bits of tissue which he wishes examined microscopically and can receive in a few moments the microscopic report from the pathologist. In many places much time is lost in carrying the tissue to a distant laboratory and bringing back the message. The element of error is least when the operator hands the tissue to the technician or pathologist and receives from the pathologist personally the diagnosis.

If the operator is a pathologist or wishes to study the section with the pathologist, this can be quickly and most satisfactorily performed, as shown in *Fig. 2*. The arm on the eye-piece of the microscope allows the surgeon to look into the microscope without impairing surgical cleanliness, while the pa-

*Read in Section on Pathology, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†Biopsy in Diagnosis of Malignancy. Sou. Med. Jour., 20:18, Jan. 1927.

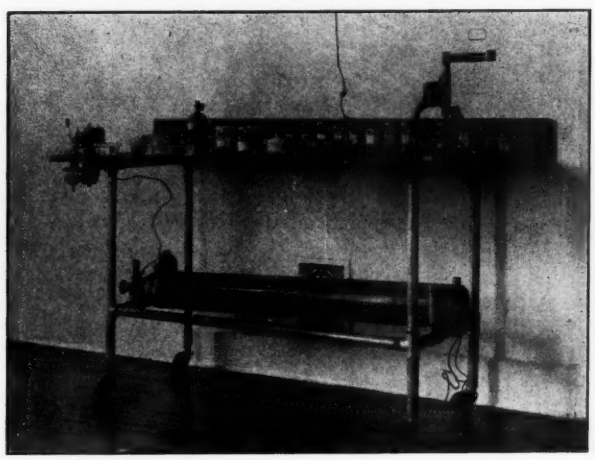

Fig. 1
Special table on wheels which can be rolled anywhere near or into the operating room. It needs one attachment for electric light for the microscope.

thologist or technician moves the section on the stage and adjusts the microscope for high or low powers. The nearer this table is to the operating table, without any interference with the operation, the better.

Fig. 2
Illustrates how the technician or pathologist can focus the microscope on the section so that any member of the operative team can study the microscopic appearances without changing gloves or gown.

In this paper I do not propose to discuss methods of sectioning and staining. My first experience was with frozen sections mde from fresh tissue, fixed by boiling in formalin and then stained with hematoxylin and eosin. These sections were practically identical with sections from tissue hardened in formalin, embedded in celloidin or paraffin, most thinly cut and beautifully stained with hematoxylin and eosin. I soon found that the element of error was no greater by this method between the quickly obtained section and the slower one. Some two or three years ago we began to freeze the section without hardening and then to stain it with polychrome methylene blue. For a long time in the operating room, we made both kinds of frozen sections. At the present time we depend largely upon the unfixed section stained with polychrome methylene blue. But in every instance the operating room diagnosis is checked with a later laboratory diagnosis and both diagnoses are checked, as far as possible, by the result.

The method described by Dr. Terry has been given a trial. It has the advantage of great simplicity. The sections are not difficult to cut. Each pathologist must judge for himself, after a fair trial, whether this method gives as clear a picture of cellular pathology as the other method of polychrome methylene blue stain. I should advise every pathologist to experiment with both fresh and hardened tissue by the three methods. Shaw, one of the London pathologists, has a very simple method of freezing tissue with an ethyl chlorid spray. In London, where there are many nursing homes in which operations are done, Shaw and Terry's methods have advantages. Neither needs elaborate apparatus, nor the large gas tank. Dudgeon, another London pathologist, does not freeze, does not cut, but teases on a glass slide, carefully fixes and beautifully stains, so that one can easily study the individual cells. True, the morphology is somewhat changed by the hardening process. These five methods of preparing fresh tissue in the operating room for microscopic study must be carefully tried in each individual operating room throughout the world. It is my opinion that the most important thing is first to introduce tissue diagnosis in the operating room as a routine procedure in all cases in which the operator wishes a pathological diagnosis, whether it be essential for diagnosis or not. Only in this way can the best method of preparing these sections be established. In difficult cases it may be necessary to employ two or more methods. Better schemes for rapid cutting and staining may be devised.

I am calling the attention of surgical and pathological colleagues to tissue diagnosis in the operating room, because I feel that the time is not far distant when it will be forced upon them. Malignant disease, in its clinical stage, is rapidly disappearing. When malignant disease can be diagnosed clinically, the chances of a cure are less than 10 per cent, because it has become inoperable in more than 50 per cent of

Fig. 3
Bisection of tumor of the breast with zone of breast. Non-encapsulated tumor, in the gross appearance like cancer. Upper part tumor, lower breast. Microscopically benign (see Fig. 4).

cases, and is curable in the operable remainder in less than 20 per cent. Among those surgeons who have learned to recognize malignant disease in the gross tissue, there are many who are finding each year a greater number of local conditions which present no clinical evidence of malignancy and whose gross appearance is different from the well known and previously observed naked eye picture of a benign or malignant pathological process. They are beginning to realize that they are called upon to treat and recognize cancer in its microscopic stage.

When the local lesion is so small that it can be removed with a wide margin of normal tissue, there is no indication for biopsy and the microscopic section. In some instances the pathology must be accurately observed in microscopic sections, because, if the lesion is cancer of a certain type, the neighboring lymphatics must be removed.

However, in breast tumors, the immediate recognition at exploration of the lump and its local removal are essential, because, if the lump is cancer, we have no way at the present time of telling whether the glands are involved or not, and the vast majority of surgeons are of the opinion that the complete operation should always be done for a malignant tumor of the breast. The evidence seems to show that it is much safer that this complete removal should follow immediately the exploration of the local lesion if it is malignant.

The same is true in lesions of bone. We cannot always differentiate with the x-ray. Since the treatment for the malignant bone lesion is complete removal by amputation or resection, there must be biopsy. It seems safer for the patient when the lesion is sarcoma to have the diagnosis made in the operating room to reduce to the minimum the danger of disseminating the disease at exploration.

There will never be tissue diagnosis in the operating room until both pathologists and surgeons are convinced that the accuracy of such microscopic diagnoses is at least equal to the accuracy of diagnosis made later from carefully prepared sections.

The technic of making and staining frozen sections is more difficult than the ordinary technic, but I believe any technician capable of making good paraffin or celloidin sections can make equally good frozen sections, if he is given the opportunity to learn.

To repeat, as long as this is considered an emergency and not a routine procedure, the technical results will be faulty.

The majority of pathologists soon find themselves preferring celloidin or paraffin sections and a certain definite stain. Change the preparation or the stain and they find themselves in a dilemma which interferes with their judgment.

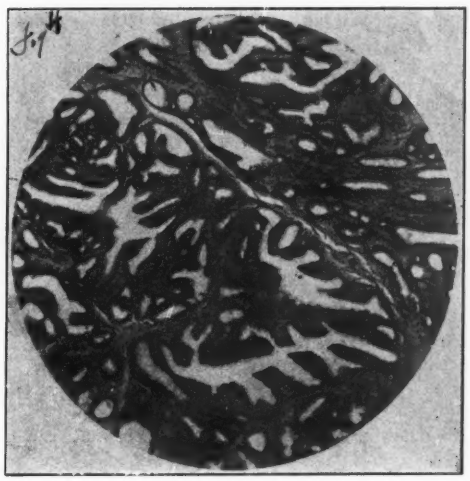

Fig. 4
For gross, see Fig. 3. Papillary cystadenoma resembling residual lactation hypertrophy.

Fig. 5
Gross non-encapsulated tumor of the breast suggesting chronic mastitis or gumma. For microscopic section of early cancer, see Figs. 6 and 7.

One must, by practice, become familiar with one or more methods of examining freshly stained frozen sections, or Dudgeon's hardened and stained smears of teased tissue., If the pathologist studies a large number of properly prepared frozen sections, he will immediately follow the footsteps of others and find no difficulty in diagnosis.

Tissue diagnosis in the operating room will have a very great educational value, if it is properly done. All the surgeons in the operating room will have an opportunity to compare, in a very short time, clinical, gross and microscopic pictures. This method of diagnosis will bring the pathologist to the operating room and give him larger opportunities for improving his diagnostic abilities in difficult cases, and it will also influence the surgeon and his associates to study more carefully the gross and microscopic pathology of the diseases they are attempting to cure by operative intervention.

Major operations for cancer in its clinical stage developed good surgeons, but did not make many good pathologists. Cancer, in its microscopic stage, will force pathologists to become better microscopic diagnosticians in the more difficult borderline cases and will undoubtedly make surgeons more interested in pathology without interfering with their operative skill.

Breast Tumors.—Fig. 3 pictures a small tumor of the breast. It has been removed with a zone of breast. It was clinically benign. One can easily see that it is not encapsulated. Its cut surface shows the white lines and dots of cancer. When I excised it and bisected it in the fresh, it cut like cancer. It gave to the knife the gritty sensation of scirrhus. I was so certain, from the gross that it was cancer, that I did the complete operation. Yet *Fig. 4* shows that the tumor is not cancer, but a non-encapsulated area of unresolved lactation hypertrophy with chronic mastitis (this is seen in another section). There was no evidence of metastasis to the glands. The patient is well in 1927, six years after operation. This case has previously been reported (*Archives of Surgery*, 3:445-542, 1921).

Here is an example of a non-encapsulated area of the breast which was clinically benign, distinctly malignant in the gross appearances, yet microscopically not cancer. If I had made a frozen section in the operating room in this case in 1921 I would have saved the breast, and the patient would run no more risk of cancer.

Fig. 5 is another example of a non-encapsulated tumor of the breast which I explored. The tumor was clinically benign, its gross appearance, its sensation to the finger and with the knife were all against cancer and in favor of an area of chronic mastitis. It suggested a gumma. Yet the frozen section (*Fig. 6*) showed that we were dealing with cancer, and the complete operation revealed a gland in the base of the axilla with microscopic cancer. This patient died of metastases to lungs in 1927, five years after operation.

The number of cases of non-encapsulated, solid areas in the breast which cannot be differentiated without the microscopic section is on the increase. When one explores or removes a non-encapsulated solid tumor from the breast, cancer must always be suspected, and if there is no provision for tissue diagnosis in the operating room, it is always wiser to perform the complete operation for cancer. However, with a frozen section one will be able to save the breast of many women, because these non-encapsulated solid areas may be just as benign as the well-recognized benign encapsulated adenoma. The earlier women come to the operating table with lumps in the breast the more frequently will these non-encapsulated tumors, difficult to diagnose, be revealed. The same is true of cysts. The blue-domed cyst with its clear or cloudy contents can be recognized by anyone as benign. But to exclude malignancy in a papillomatous

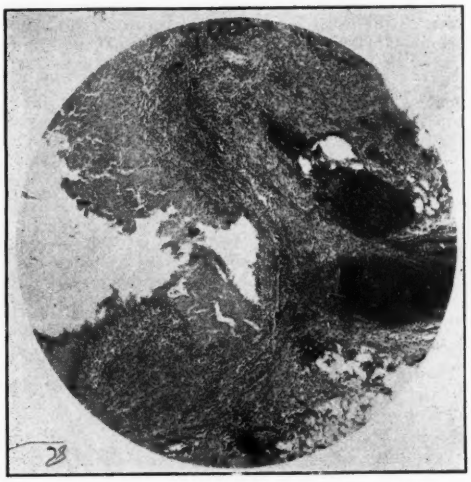

Fig. 6

Low power photomicrograph. For gross, see Fig. 5. This section suggests chronic mastitis. But, in the area to the left, in high power picture (Fig. 7), cancer cells are seen.

cyst, one should have a frozen section of the cyst wall at the base of the papilloma and a zone of breast beyond. In non-papillomatous cysts, which are not blue-domed and the contents of which are not clear or cloudy, but bloody or grumous, and the walls of which are thick, there are always necessary one or more frozen sections from different parts of the cyst wall and from a zone of breast beyond to reveal the cancer cyst, which, although a rare tumor, frequently masquerades in an innocent gross appearance.

In a series of papers in the *Journal of Bone and Joint Surgery* I have reported and illustrated numerous examples in which at biopsy we were able to distinguish the benign from malignant and to act immediately: to amputate or resect if the tumor was malignant and to save the limb if the lesion was benign.

The microscopic section made by these rapid methods in the operating room is employed not only for the diagnosis of the local lesion, but can be most accurately and satisfactorily used to determine the margin that should be given for benign and malignant tumors of different types and to ascertain whether glands near the local lesion which are exposed at the operation show metastasis. Such glands can be removed with the cautery. This is especially useful in the removal of the glands of the neck in cancer of the tongue and lip. After having excised the malignant lesion, one cannot only study the margin removed, but take bits of tissue from the surface and margin left behind.

With us, tissue diagnosis in the operating room is becoming a routine procedure, an instrument of greater precision. When not essential for diagnosis at the operation, the tissue removed can be used for study and for teaching purposes. It can be used for investigation. A few days ago I removed a verified benign tumor of the breast with a zone of fat, and a verified cancerous nodule recurrent in the skin after complete operation for cancer of the breast with a zone of fat. Both nodules were smaller than a ten-cent piece. We made frozen sections of the fat surrounding each nodule and studied the sections without knowing whether the fat surrounded the benign or malignant tumor. In both the lymphatics were numerous, distinct lumens lined by endothelial cells. In one, many of the lymphatic capillaries were plugged with cells. We thought at first that this meant that cancer cells were invading the surrounding lymphatics. However, the fat showing this surrounded the benign lesion. It was probably due to the inflammatory reaction of the endothelial cells. In another instance we removed bits of fat from the apex of the axilla after two complete breast operations which occurred on the same day. In one we knew that the highest

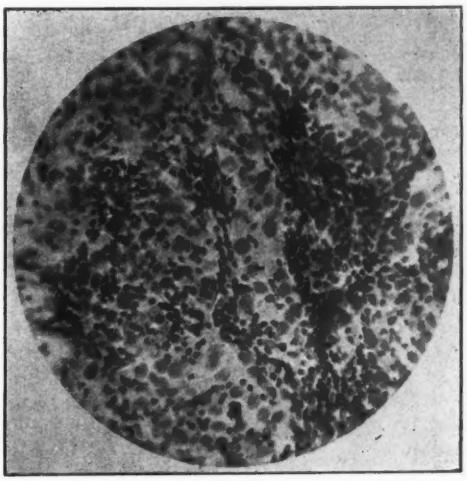

Fig. 7

High-power photomicrograph of area shown in Fig. 6. Cancer cells in lymphoid stroma. This case: grossly benign, microscopically cancer.

glands showed cancer, in the other the sections from the glands were negative for cancer. In these two sections from the fat in the apex of the axilla we could easily recognize, in one, cancer cells in the lymphatics. In the other they were not present. This simply confirms observations made years ago by cancer students: endothelial hyperplasia in lymphatics may be difficult to distinguish from cancer. But there is a stage in which even small numbers of cancer cells can be clearly seen and recognized by their morphology, and this finer differentiation can be made with the frozen section just as certainly as with the hardened paraffin or celloidin section.

I doubt that anyone can persuade pathologists or surgeons to this point of view of tissue diagnosis in the operating room. They must find it out for themselves. No one will discover this valuable adjunct to operative diagnosis if it is used at rare intervals as an emergency procedure. I know of no one who has given it a fair trial as a routine procedure who does not appreciate and recognize its value.

DISCUSSION (*Abstract*)

Dr. George B. Adams, Atlanta, Ga.—Ever since I learned to do frozen section work I have been interested in this kind of tissue examination, because of the immediate information obtained and its value to the surgeon in the treatment of the case in hand. Hence I am happy that Dr. Bloodgood has given us his experience with this method of tissue diagnosis. I have been doing frozen sectioning for the rapid study of tissue for a number of years, and while it is not a simple and easy procedure to prepare sections in this manner, it is not beyond the skill of the average tissue technician. Certainly the pathologist should have little trouble in studying the morphology of cells in sections thus prepared. I cannot recall a single instance when our diagnosis from frozen section has been changed by subsequent study of paraffin sections. In the interest of the patient the frozen section should be used more frequently.

Last year I heard Dr. Bloodgood say that the public has become so enlightened and our knowledge concerning tumor growths has so broadened, that at the present time malignancies are being treated earlier, and in the early stage of the disease malignancy is not easily recognized grossly. I feel that this is quite true, and the surgeon loses a strong arm of support when he does not make use of histological study of frozen sections for immediate diagnosis of tissue before the patient leaves the operating table. A rapid examination of tissue by this method is made in practically every case operated upon at the Mayo Clinic.

Dr. B. T. Terry, Rochester, Minn.—With what I have heard Dr. Bloodgood say I wish to express my hearty approval. He has told you of the advantages of frozen section technic. May I call your attention to a new method which has most of the advantages of frozen sections and yet is simpler, easier, faster, and less expensive? It is applicable both to perfectly fresh unfixed tissue and to tissue which has been well fixed in formalin. By this new razor technic, sections which are much thicker than ordinary frozen sections are stained with an aqueous differential stain in two to three seconds superficially on one side only, are washed quickly in water, and are then studied at once microscopically, stained side up beneath a cover. High as well as low powers of the microscope may be employed. Even oil immersion examination is satisfactory.

BRONCHIECTASIS*

By E. C. THRASH, M.D., F.A.C.P.,
Atlanta, Ga.

Bronchiectasis in the past has received less careful study than many other diseases not so important. As a rule, this malady is thought of only after the patient has been expectorating purulent sputum for a long period, and even then the diagnosis is considered debatable unless the sputum has a putrid odor. Most textbooks in treating lung diseases give the subject only passing notice.

In recent years accuracy of diagnosis of bronchiectasis has been aided greatly both by the precision which highly developed x-ray methods have given us and by bolder steps of the thoracic surgeons. The thorax occupies about the same position now from the standpoint of the surgeon that the abdomen did thirty years ago. At that time the profession was just beginning to have a feeling of safety in invading the various recesses of the abdomen. Operations now are being done upon the thorax that were not dreamed of ten years ago, because surgeons were reticent in daring to enter a field fraught with so much danger and gore. We have learned from improved x-ray methods and biopsies that bronchiectasias are among the very common diseases of the lungs, and that they need not be associated even with constant expectoration of sputum, to say nothing of the putrid odor for which we have always looked.

In order to present this subject comprehensively it will be necessary to make a short survey of maladies that serve as etiological backgrounds. The most important of these are massive collapse, the various pneumonias, abscesses, atelectasis, chronic persistent bronchitis and destructive changes produced in the lungs from tuberculosis.

In dealing with collapsed lung structure the

*Read in Section on Medicine, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

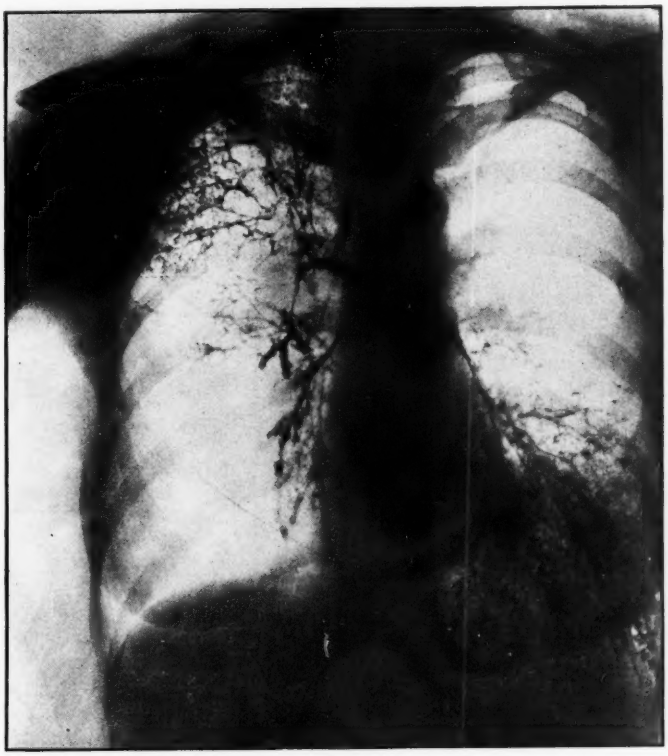

Fig. 1
The upper half of the right lung shows an optimum filling of a normal lung. The base of the left shows a pan-bronchiectasis involving the vesicles, bronchioles and larger bronchial tubes.

writer wishes to distinguish between the following: lung areas that have not collapsed, but which did not open at birth and should be considered as atelectasis, and those that have been closed post-natally as collapses. An atelectatic lung begins immediately after birth to undergo degenerative changes characterized by atrophy and obliteration of the endothelial cells, elastic fibers and musculature of the vesicles, bronchi and bronchioles. Obliteration of the vesicles and atrophy of the elastic tissue and musculature of the tubes tends to change the lung structure from a mass of normal tubes and vesicles to a structure with more or less absence of vesicles and greatly dilated tubes. In many instances a massive collection of distorted tissue and dilated bronchial tubes is all that is left. These areas when filled with opaque substances reveal but little except opacities produced by the oil on account of the atelectatic area consisting chiefly of sacculated tubes.

Lung structure collapsed early in life from pneumonia with plugging of the bronchi, pyothorax, deformity, or from other causes, reveals the same pathological findings as atelectasia. Later in life after the cell structure of the lungs has become more highly developed and more stable, and there has been greater infiltration of fibrous tissue, the long-continued collapsed lung shows changes characterized by fibrosis without noticeable bronchiectasis. As a matter of fact, in lungs that have gotten in a state of bronchiectasis from long-continued purulent infections, the enlarged tubes may in a measure be closed by collapsing the lung and the malady may be improved. In some instances even a cure can be made by collapsing the lung.

Bronchiectasis produced by the various pneumonias invariably results from a lack of complete resolution. In the progress of this process there is suppuration, either microscopic or macroscopic, death of the lung tissue, destructive changes in the tubes, all of which tend to cause bronchiectasis to some degree. Mild forms of bronchiectasis resulting in this way are the ones that are usually undiagnosed, because often there is but a small amount of expectoration, and diagnosis is impossible without injection of iodized oil. It is easy to believe that bronchiectasis results more or less in all pneumonias terminating in this way, and that a cure takes place in many of them.

Chronic suppurative bronchitis of long standing from any cause will necessarily produce a bronchiectasis. This is especially true of the types due to inhalation of escharotic chemicals.

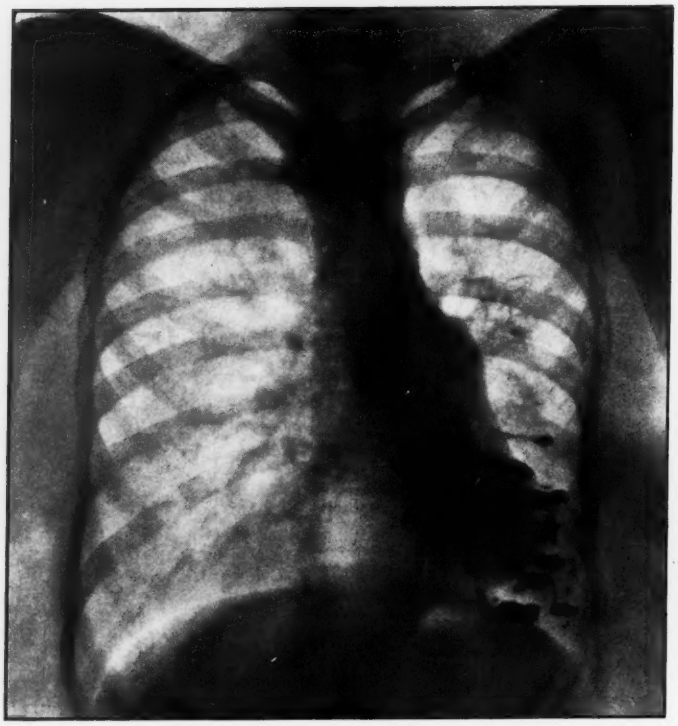

Fig. 2
This is a case of atelectasis occurring at age of 18 months, resulting in bronchiectasis, age 15 years. Note deformity of the thorax.

Most of the persistent problematic coughs of war veterans due to the inhalation of gas during service are due to this malady and not to tuberculosis. It has been found, in our experience that gassed victims practically all have a chronic pan-bronchiectasia involving the bronchioles and vesicles. I have seen fit to designate these as pan-bronchiolectasis and alveolectasis, the latter word probably not having been used before. I make the following distinction between alveolectasis and emphysema: vesicles which have been filled with pus for a long period, have become sacculated and have undergone thickening from fibrosis I designate alveolectasis, whereas only those that have been overdistended and their walls weakened by air should be classed as emphysema. One of our patients who was gassed in France shows an alveolectasis throughout the base of both lungs on account of pus sacculation covering a period of many years.

Abscesses of the lungs that are not cured by surgical drainage, or that do not heal otherwise while in the acute stages, always result in bronchiectasis. The reason of this is that gravitation carries the pus into the tubes leading downward from them, putting these tubes in a state of overdistention with pus at all times except after arising in the morning when constant coughing or tilting the thorax downward empties this pus. These forms, in the writer's opinion, can be handled only surgically, regardless of the fact that much has been said about postural drainage. Thoracic surgery in recent years has accomplished much in the cure of the types which were once considered practically incurable.

There are many varying degrees of bronchiectasis resulting from tuberculosis, but a tuberculous process is of so much more importance than the dilated bronchial tubes resulting from this disease that such forms need but little consideration. The chief dangers of this type of the disease are not so much from the disturbances of the bronchial tubes and sacculation of pus as from the aneurysmic condition developing in the accompanying blood vessels, these vessels often bursting into adjacent cavities and causing death.

In the outset it was stated that improved x-ray technic has aided us greatly in finding these maladies where we had failed to find them previously. In a survey of this subject it will be necessary to give a brief outline of technic. A few years ago Forestier ventured to inject iodized oil into the bronchial tubes for diagnostic purposes. This procedure has now become a general diagnostic method. Prior to this, bismuth paste and other opaque substances had been tried, but they were abandoned as impractical.

There are several different means of injecting

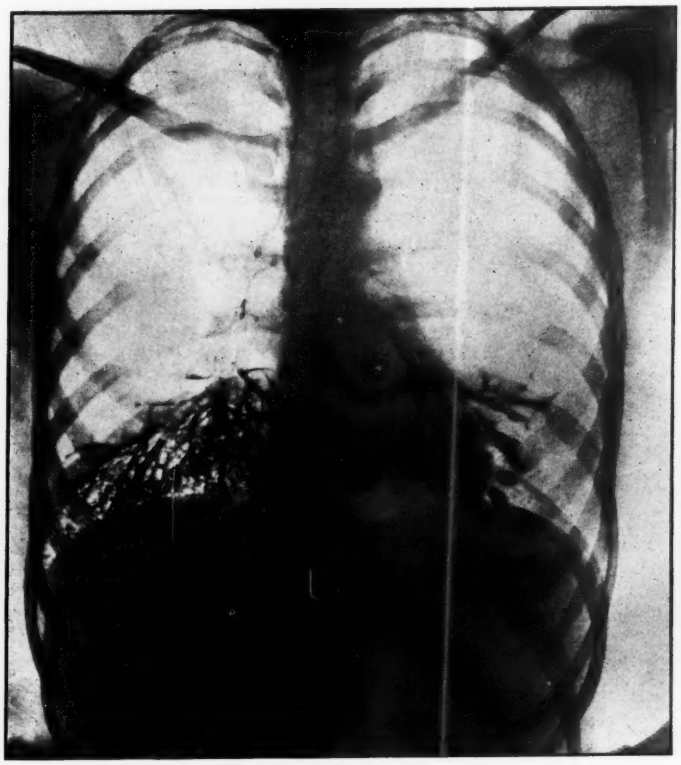

Fig. 3

Woman 23 years of age. Had pus in thorax at 3 years of age. An atalectasis was followed by bronchiectasis. This was a case of bronchiectasis with foul sputum and a lot of exudate within the lung substance. Note club-shaped bronchial tubes in base of left. Right lung fairly normal.

the oil. The three most generally used are: first, by pulling the tongue well back, lifting the epiglottis from the glottis, and pouring the oil directly into the glottis without allowing the instrument to touch the tissues. Some like this method because it can be done without complete anesthesia of the parts. Second, the larynx and trachea may be thoroughly anesthetized with cocain and the oil introduced into the trachea with a syringe having a long curved nozzle. The oil can be poured into either lung by tilting the patient in the direction you wish the oil to flow. Third, the oil may be introduced through the bronchoscope.

We use the curved cannula and inject the oil into the trachea for the following reasons: coughing will mar all efforts to obtain a bronchographic outline of the bronchial tree. Even one cough will often scatter the oil throughout both lungs and give no detail in the area which is being studied. Without complete anesthesia it is impossible to prevent the patient from coughing, and after one gets a complete local anesthesia there is no reason why the tube should not be put directly into the trachea and hasten the procedure, success depending upon the shortest possible time between injecting the oil and making the picture. The objection to the bronchoscope is that all unnecessary traumatism of the trachea should be avoided, and there is certainly too much trauma from indiscriminate use of the bronchoscope by inexperienced persons. The method should be used only by an experienced bronchoscopist, and these are so rare that they are usually not available on the occasions when this diagnostic procedure is desired. It takes more time to use the bronchoscope, and it requires great skill to put it into the bronchus and get it out without stimulating some coughing which would nullify the effort.

It is not advisable for anyone except those who are trained to do tracheo-laryngeal work to attempt the administration of the oil. Dr. L. E. Brawner has been associated with me in all my efforts to map the lungs since we began this work in July 1926, and I have found his technic most excellent. Good laryngologists are always available and should be called into consultation, or disappointments will result. The patient should be placed in a position so that the oil will flow in the desired direction. Tilting the patient well over toward the side where the disease is suspected will produce a satisfactory tubular filling of the base of that lung. Putting him flat upon his side will fill all tubes on the lower side uniformly, and tilting him so that the head will be slightly lower than the

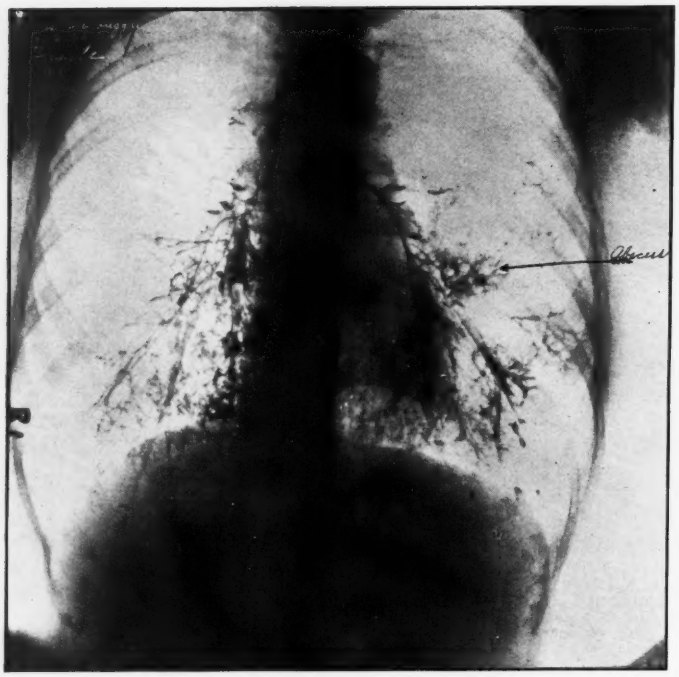

Fig. 4
Case of mild bronchiectasis following abscess of the lung, such a disturbance as unresolved pneumonia will sometimes produce.

feet will fill the apex. It is surprising how much oil a patient will tolerate without apparent disturbance. We have given as much as 40 c.c., but 20 to 30 c.c. is what we usually inject.

We have had no distress, or even discomfort, in the injections, except in one patient who suffered from severe pain simulating pleurisy. We were unable to account for the cause of this. She suffered for twenty-four hours, after which the pain passed off.

We give the injections in our office, and the patient leaves promptly for home. We do not hesitate to allow patients to go by train or automobile to their homes out of the city. There has been some question as to the length of time the oil remains in the lung. Traces of it can be found for three to four weeks following the injection. In one instance of an old abscess of the lung we found the oil in the abscessed area more than one month following its administration.

This work was begun for diagnostic purposes, but we found in many instances that it proved of value from a therapeutic standpoint.

One girl, age twenty-three, who had suffered from bronchiectasis since she was three years of age, and who showed multiple large clubbed bronchi in the base of the right lung, began expectorating less and showing evidence of immediate improvement after the injection of the oil. In the course of two months she had gained thirty pounds and felt well. She has been under observation for more than a year. During this time we have given her four injections therapeutically. She has held her weight and has felt much better than during any other time of her life. Expectoration has lessened and is not so purulent.

Most patients immediately after the administration of the oil state that they feel better. Many of them return and ask for a repetition of the injection. We have given repeated doses to a number of patients and results have been encouraging. I have come to the conclusion that it is the best therapeutic agent we have for bronchiectasis and the best non-surgical treatment for non-tuberculous abscess cavities.

157 Forrest Avenue, Northeast.

DISCUSSION (*Abstract*)

Dr. J. W. Moore, Louisville, Ky.—It is true that the authors of textbooks in the past have devoted little space to bronchiectasis as a disease. The condition apparently attracted only occasional attention, even though observant pathologists constantly reminded us that in lung infection dilated bronchi were present. It was not until chronic lung infection following gassing in 1918 had grown to gigantic figures that our profession in general took an interest in this condition. Even though rapid strides have been made in diagnosing chronic lung infection, a recent survey of a tuberculous hospital has shown that physicians without the finer methods of diagnosis are sending from 25 to 50 per cent of chronic lung infections into tuberculosis hospitals with a diagnosis of tuberculosis. To segregate these cases and to care for them properly requires in many instances definite apparatus, that is, bronchoscopes, roentgen rays and surgery. Dr. Thrash has recommended iodized oil as being the best therapeutic agent we have for bronchiectasis. Dr. David Ballou, of Montreal, agrees with the essayist that the oil has

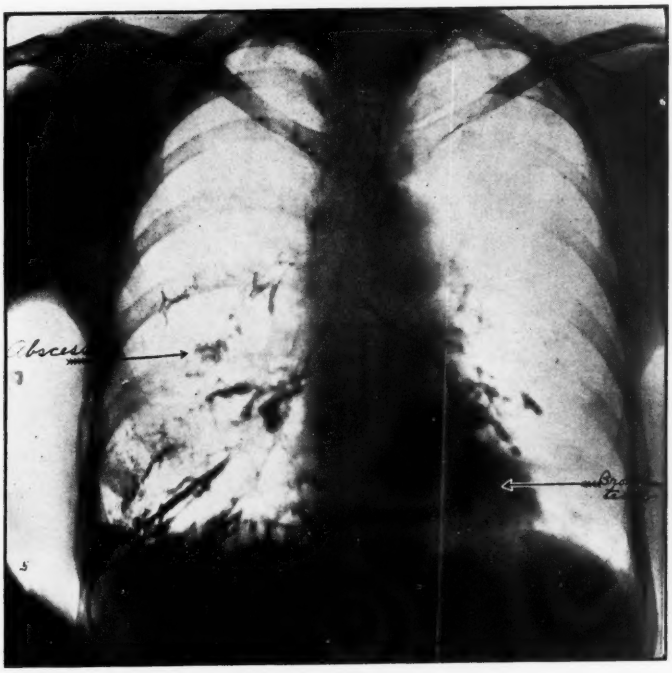

Fig. 5

Primarily an abscess in right lung. Nine months later x-rays, after lipiodol injection, show bronchiectasis in the base of both lungs, apparently brought about from gravitation of pus from the abscessed area.

a definite therapeutic value alone in the treatment of bronchiectasis, but preferably with the use of bronchoscopy.

Dr. Thrash did not speak in his paper of the time limit in the treatment of these cases with the oil. In the cases that were thrown on the screen it looked to me as if some minor surgical procedure, collapse of the lung or avulsion of the phrenic nerve, would be beneficial and bring about a more rapid cure of the cases.

Dr. E. W. Carpenter, Greenville, S. C.—The etiology and pathology of these conditions have not been mentioned. You have all seen cases of suspected chronic tuberculosis in which you could not establish a diagnosis. There were no organisms in the sputum, the temperature did not run a typical course and there was little malnutrition, and yet you had a productive cough, expectoration and in some cases hemorrhages.

Last year I read a paper on the spirochete group of mouth and throat infections, the so-called Vincent's group. I have come to the conclusion that some of the obscure cases are due to pulmonary spirochetosis. The spirochete group can be easily demonstrated with special stain. The laboratory work must be done rapidly.

Time must not elapse between the production of the sputum and laboratory study. The Doctor speaks of bad odors in these cases. Some of the spirochete group are notorious for the fearful stench that they produce. If you will study these suspected atypical tuberculosis cases in the light of our recent knowledge of pulmonary spirochetosis you will solve some of your obscure problems. A swab from the throat is absolutely no good because a large percentage of all of our mouths, 60 per cent, contain the spirochete group waiting to gain admittance. You must get a direct smear. You can expose the trachea with the speculum, with two movements go down in one bronchus, reverse the applicator and go down in the other bronchus and you will have an uncontaminated smear from the lung. When you have stained and demonstrated the rods and spirals from the depth of the lungs you have a very potent remedy in many of the arsenic preparations. Many cases of so-called tuberculosis have from neglect become cured. The explanation is that probably these patients get the habit of taking tonics, and most tonics contain arsenic.

The first thing necessary to establish a bronchiectasis in a bronchiectatic case is the destruction of the ciliated mucous membrane. When an area of cilia is destroyed you will get stasis and there will be no cough reflex. The cough reflex is potent when the bronchiectatic cavities overflow and secretion reaches the cilia. The rest of the cavity stays full of fluid. The oil preparation may be a very good remedy for the spirochetes. It will be very profitable in these cases to investigate the presence of bacteria of the spirochete group.

Dr. John W. Scott, Lexington, Ky.—The fact that confusion occurs so often in the diagnosis of bronchiectasis and pulmonary tuberculosis is, I think, a stigma on the medical profession. The patient with profuse purulent sputum, negative for tubercle bacilli on repeated examinations, almost never has pulmonary tuberculosis. When there is also a history of long duration of these symptoms, and absence of even gross signs in the apices, the possibility of pulmonary tuberculosis is negligible.

Dr. E. A. Ochsner, New Orleans, La.—Bronchiectasis is the most frequent infection we have, not even barring tuberculosis. About two years ago an examination was made of a large series of students at the University of Wisconsin, all of whom were perfectly normal individuals, having no symptoms at all except those of chronic bronchitis. Every normal student who gave a history of chronic bronchitis, cough with or without expectoration, or recurrent acute attacks of bronchitis, was referred to me. In a large series treated with iodized oil we found in over 95 per cent of the cases

a dilatation of the tracheo-bronchial tree. This is the early stage of bronchiectasis.

The various technics which Dr. Thrash has mentioned for introducing iodized oil into the tracheo-bronchial tree are all very good, but they all have one very decided disadvantage, and that is, they are complicated and require the services of a laryngologist, or some one trained in laryngological technic. If we are to do this procedure in the indicated case, that is, the early case, not the one with the pronounced pathological condition in which we can make the diagnosis from the history and physical findings alone, we need a technic which is extremely simple. We have been using the so-called "passive" technic which consists of anesthetizing the tonsillar pillar and thus abolishing the swallowing reflex. The patient cannot swallow and he merely aspirates the oil which is taken into his mouth. This should be done by one who is versed in fluoroscopy. By far the more important point is the fluoroscopic observation of the mode of filling the bronchi. We never depend upon a plate for diagnosis but always make the diagnosis under the fluoroscope. I have had three cases in which within thirty seconds after the injection of the oil a dilatation of the bronchial tree could be made out under the fluoroscope. Within the next thirty seconds the oil passed out into the alveoli and produced such a haziness that the bronchial dilatation could no longer be made out. The oil should be introduced into the tracheo-bronchial tree while the patient is under the fluoroscopic screen.

I have practically discontinued operating upon any of these cases of bronchiectasis. I feel that we obtain as good, if not better, results by repeated introduction of iodized oil, and with a mortality which is nil. There is no operative procedure which has that absence of mortality.

Dr. Thrash (closing).—I fully agree with all that Dr. Moore has said. It is very important to see that the tubes are not over-filled with a great quantity of oil.

As to the length of time of treatment, one goes on and does the best he can as in the treatment of tuberculosis, and certain disappointments will result in spite of all that he does. The best one can hope for is to try to keep down the quantity of sputum and expectoration.

I must disagree with Dr. Carpenter in a measure. We are not discussing focal infections, and spirochetes have nothing to do with bronchiectasis. They may produce bronchiectasis secondarily to some other serious malady. Mild bronchiectasis may result from a simple malady, but it is my opinion, as stated in my paper, that most of these cases get well. We have many cases, just as we have in tuberculosis, where the patient gets well and we never know what has cured him. It is the cases that go on until they produce a serious abnormality that we are chiefly interested in. As far as the spirochete is concerned, I think it probably produces some infection, but that it is more or less of a scavenger. Vincent's germs, the bacilli and spirochetes, have been studied carefully and no one has ever shown satisfactorily that they are very strongly pathogenic. They are more or less scavengers just like the same bacteria which are found in the mouth. They do some harm but not a great deal.

ENCYSTED INTRAMUSCULAR PARASITES*

By L. A. FORTIER, M.D.,
and
T. T. GATELY, M.D.,
New Orleans, La.

That man can be an intermediate host for *Tenia solium* or *Cysticercus cellulosae* is a com-

*Read in Section on Radiology, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

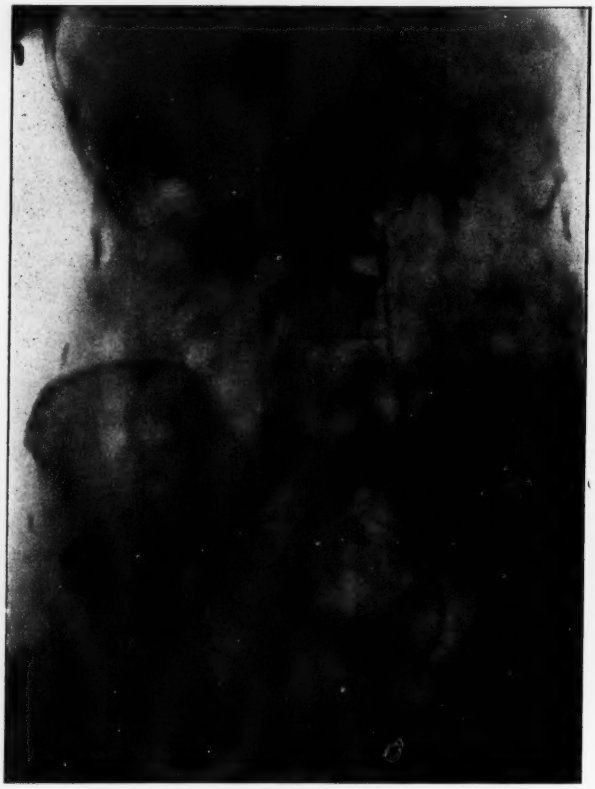

Fig. 1
Pyelogram showing distribution in lumbar musculature.

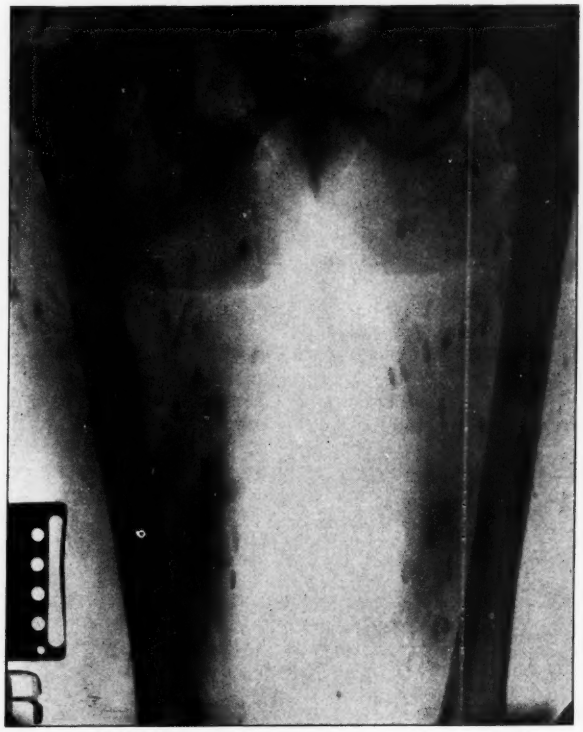

Fig. 2
Extensive distribution in thighs and buttocks.

monly known and frequently demonstrated fact. The ova reach the stomach by ingestion or by reverse peristalsis from the duodenum. In the stomach the shell is digested, setting free the oncospheres which pass into the blood stream and settle in the brain, meninges, lungs, eyes and heart, but most commonly in the skeletal muscles. Here they become clear elliptical cysts measuring about 1 by 1.5 cm. These later calcify and may give rise to signs and symptoms.

The radiographic recognition and demonstration of such an end condition is, however, sufficiently rare to warrant a report of the case which has come under our observation. As far as we can ascertain, it has not been previously reported in this country, only rarely in England, and the Continent, and most frequently in Germany.

In February, 1924, Dr. G. Krutsch reported a case in detail in the *Munchener Medizinischer Wochenschrift*. His patient was a worker in a packing house and gave a history of having had a tapeworm of some sort thirteen or fourteen years previously. Radiographs showed cylindrical calcifications 1 to 1.5 cm. long in the musculature of the trunk, neck and extremities. In his article Krutsch gives credit to Prof. Geipel, who had previously reported a similar case. Unfortunately Prof. Geipel's article was not available.

In the *British Medical Journal*, September 11, 1927, E. J. H. Roth reports a practically identical case and comments on the rarity of its demonstration.

Our case was that of a married woman aged 53, who complained of pain in the left lumbar region. No other symptoms were present. Skiagraphs of the genito-urinary tract and a pyelogram were made. These showed some slight hydronephrosis and kinks in the right ureter. They also showed, however, numerous cylindrical calcifications varying from approximately 1 to 1.5 cm. in length and from 1 to 5 mm. in width. These were apparently scattered throughout the soft parts in the line of the muscle planes, and this led us to suspect a generalized infestation of a parasitic nature. Accordingly the head, chest and extremities were rayed and similar calcifications found in the arms, forearms, thighs and legs, but not in the skull or chest musculature.

One of the masses was removed from the thigh by Dr. J. A. Danna and found to be composed of a gelatin-like cyst filled with fluid and an opaque material. It was diagnosed in the gross by Dr. Aldo Castellani as "one of the cysticerci," which diagnosis was confirmed, microscopically, by Dr. M. Couret (*Cysticercus cellulosae*).

It is interesting that the patient was born and reared in southwestern Louisiana, had butchered much pork, and when a young girl was treated for some species of tapeworm. Her blood count was practically normal, showing only a slight anemia and a slight leucocytosis. The feces were negative for ova.

There is little likelihood that a generalized condition of this character will be confused with anything else. It is possible, however, that we may encounter cases where only several such calcifications may be seen and the diagnosis is obscure. The findings of such cylindrical calcifications should lead to a general examination of the head, trunk and extremities to demonstrate or exclude a cysticercus infestation.

REFERENCES

1. Geipel: Cysticercus cellulosae in der Korpenmuskulatur.
2. Fortschr: a. d. Geb. D. Rontgenstr., 20.

Fig. 3
Distribution in lower extremities.

3. Geipel: Stizungsbericht der Ges. F. Natur-u Heilkunde zu Dresden.
4. Ref. in M. M. W., S. 1168, 1921.
5. Krusch: Med. Wochenschrift, p. 137, part 1, Feb. 1927.
6. Roth: Brit. Med. Jour., 2:470-471, Sept. 11, 1926.

DISCUSSION (*Abstract*)

Dr. Fortier.—Very few cases have been demonstrated by the use of x-rays. Roth, in his paper, mentioned that the disease is common in America. I do not know whether he meant the North, South or Central portions.

OTORHINOLOGIC HYGIENE OF SWIMMING*

By H. MARSHALL TAYLOR, M.D.,
Jacksonville, Fla.

One of the most important hygienic problems today is the prevention of sinus and aural infections which have resulted from the tremendous increase in popularity of the public bathing places, and which can be attributed directly to the sports of swimming and diving. A survey of the literature shows that the sanitarians and public health officials for centuries have been more alert to the importance of this phase of preventive medicine than the students of otorhinology.

Perhaps there is no department of sanitation which has been studied so long as that of public bathing places. It is a matter of historical record that the ancients had methods of filtration four hundred years before Christ, and that the Chinese used alum in their public baths before the Christian era. All civilized nations have patronized public baths chiefly at the most flourishing periods of their history and in this connection it is interesting to note a recent report of the Committee on Bathing Places by the sanitary engineering section of the American Public Health Association, which speaks of the nation-wide increase in popularity of public baths.

If one attempts to review the literature of the sanitary engineers in their work on public baths, one cannot but be impressed with the tremendous efforts which have been put forward under such heads as pool construction, the study of the bacterial quality of water, clearness of water, sputum contamination, diseased bathers, personal cleanliness of bathers, laundering of suits, sanitation of premises, and rules which the bathers must comply with before entering and while in the pool.

By the chemical treatment of the water through the use of various agents, of which liquid chlorin is the most common, and such mechanical measures as filtration, the ultraviolet ray or the passage of water through an ozonating apparatus, the sanitarians now assure us that they can kill or neutralize 99 per cent of the bacteria in a given pool. They further state that if they can keep their bathing load down to 800 gallons to each bather, the pool remains in an acceptable sanitary condition.

When we recall that there are many other factors besides contaminated water which enter into the modus operandi of the invasion of these aural infections following swimming and diving, we are convinced of the fact that this subject is of vital interest to the otorhinologists, the internists, as well as sanitary engineers.

Today, with all of these methods used in our modern swimming pools, during the bathing

*Clinic, General Clinic Session, Southern Medical Association, Twenty-first Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

season every day the otorhinologist is called upon to care for the infections of the ears and sinuses following swimming. It is not the purpose of this paper to discuss the problems which fall to the sanitary engineers, namely, the sterilization and maintenance of pools, but to consider other etiologic factors, laying special emphasis on man's lack of adaptation to aquatic habit or sports.

In recent years, the advances in medicine along bacteriologic and immunologic lines have opened up such tremendous fields for research that they have to some extent overshadowed some other branches of medicine of paramount importance and tended to relegate them to the background. Biology, the fundamental study of all phenomena of life and its manifold relations, is one of the branches of science that cannot be ignored.

In reviewing our biology we find that all of the diving mammals have a musculature or sphincter with a special valvular apparatus for closing the nostrils when diving. This is found in the beaver, the seal, the walrus, the manatee, the hippopotamus and all of the animals which are modified for life in the water.

From biology we learn that every species of animal life is adapted to its environment and that all its organs are fitted to its functions and all its functions to its environment. Now, let us briefly discuss man's adaptation for water. What has he, or has he anything that is homologous to the musculature aquatic mammals have for closing the nostrils and for keeping water from their nasal cavities and appurtenances?

At best the compressor narium of man is a small muscle rising from the superior maxilla and is inserted by an aponeurosis across the bridge of the nose into its fellow of the opposite side. . . . This is a small muscle at best and very hard to demonstrate. Its function is to confer on the human face facial expression.

These comparative anatomic features of the aquatic animals and man are in line with the assertions of the students of comparative anatomy and biology that man is now far, far removed from being an aquatic animal and has not the adaptation for an aquatic environment.

This difference in man and the diving animals seems to explain why man is so susceptible to sinus diseases while the lower animals breathing air as man does and living constantly in the water do not encounter these same difficulties.

The plan of respiration for all air-breathing animals is fundamentally the same, there being no essential difference in the epithelium lining their respiratory tracts. It is the usual stratiform flat epithelium lining the nasal vestibule which gradually assumes the structure of true respiratory mucous membrane; that is, the stratiform ciliated cylindric epithelium. The latter, a specialized type, is designed to keep moist the tracts through which a current of air is constantly passing, to warm the air, and to secrete a mucus which is inhibitory to bacterial growth or bactericidal, and in which the bacteria are enmeshed and are carried by the wave-like motion of the ciliated epithelium to the pharynx and esophagus to be disposed of. We cannot look for the difference between man and the aquatic animals here. The difference lies in the fact that those animals which are highly modified to live in the water can at their will or involuntarily close the anterior nares and in this way protect their respiratory epithelium from the destructive action of the water.

Man, when diving allows the inrush of water, possibly contaminated or water which may be over-chlorinated, to come in contact with his respiratory ciliated epithelium destroying the protective mechanism of the nose. The protective mechanism of the nose consists mainly of two factors: (1) the secretion of a mucus which is inhibitory to bacterial growth, if not bactericidal, as claimed by some investigators, and (2) the power of the ciliated epithelium to sweep this mucus, in which the bacteria become enmeshed, toward the pharynx and esophagus to be disposed of. Anything which interferes with these two functions, whether it is mechanical, chemical or thermal, breaks down Nature's barriers and renders the nasal cavity and its appurtenances susceptible to infection.

Perhaps one of the most necessary protections against aural infections is the wave-like motion of the ciliated epithelium lining the nasal cavity and orifice and proximal end of the eustachian tube. Piersol has demonstrated that reduction of temperature or irritating chemicals will stop these vibrations, and it is evident that in diving these vibrations will be inhibited, if not entirely abolished, thereby affording an opportunity for infection to enter the tube and travel to the tympanum.

The nasal mucus, which is inhibitory to bacterial growth, is washed away when diving, and the mucous membrane is exposed to the destructive action of water. Fenton has dwelt at length on the destructive action of water on cells by osmosis, and the drawing out of saline elements,

causing edema and acidosis of cells and eventual cell death.

This brings us to the second of the possible causative factors of sinusitis from swimming; that is, a lowered resistance, rendering the individual more susceptible to the pathogenic organisms normally harbored in the upper air passages.

The question of the duration of time one can remain in the water without reducing the body temperature and lowering one's resistance is a matter of paramount importance. We know that cold water has a veritable appetite for heat, and all authorities agree that prolonged cold baths cause a rapid loss of body heat.

We are all familiar with the investigations of Pasteur and Durch, who have found that chilling lowers resistance. Trommsdorf has also shown that prolonged chilling of the body causes a decreased motility and phagocytic activity of the leucocytes. The work recently done by Mudd, Grant and Goldman is also interesting in this connection. In an exhaustive study they have reported that chilling of the body surfaces cause a fall in the temperature of the nasal and pharyngeal mucous membrane, and conclude by saying that chilling of the nasal mucous membrane and change in vasomotor tone may so disturb the equilibrium between the host and the bacteria of the nose as to favor infection.

One summer, I became interested in the question of lowered resistance from chilling, particularly in reference to sinusitis from swimming, and had the temperature taken of 250 children under thirteen years of age, both before and after they had been swimming for forty-five minutes in an indoor swimming pool with a water temperature of 73°F. Of the 250 children, only thirty maintained a normal temperature, while the other 220 showed a reduction of temperature, many as low as 95°F.

Now, let us briefly consider the adaptations which some of the warm blooded aquatic animals have for their environment and their means of maintaining their body temperature, for instance, the cestaceans. These mammals are the most highly adapted of any of the warm blooded animals for aquatic life. They live their entire lives in cold water, and many of them maintain a higher normal temperature than man. The function of keeping their bodies warm is performed by a thick layer of blubber, a non-conductive material, a dense kind of fat placed immediately beneath the integument. Other aquatic animals that live in cold climates, such as the seal, walrus and sea-lion, have a heavy coat of fur as well as the fatty layer. It all seems to point to the fact that they are highly adapted mechanically to their normal habitat, which even without natural physiologic immunity would adequately protect them.

Now let us see how evident it is that man is not so modified to maintain his normal temperature in water that is of lower temperature than his own. Fox states that in a bath with a temperature of 70°F. of from fifteen to twenty minutes' duration the loss of heat may be increased to fivefold that of the normal basal rate. In strong normal persons this loss of bodily heat does not result in immediate lowering of the body temperature, but if the bath is prolonged the production of heat fails to keep pace with the loss and the temperature of the body falls. This observation in itself is sufficient evidence of the fact that man is lacking in the adaptation to maintain his body temperature for more than a brief period in water temperature lower than his own.

In the foregoing statements I have endeavored to show the modifications which the aquatic animals have for their environment and the striking absence of such adaptations in man. I have noted the means with which Nature has endowed the aquatic animals for preventing water from gaining entrance to the respiratory tract, the means they have of maintaining their body temperature in cold water, and the absence of these provisions in man.

I have gone into the biological side of this question somewhat in detail with the idea of trying to show that man is a terrestrial being and has not the modifications of an aquatic animal. He has not the means of maintaining his body temperature in cold water, neither can he protect his respiratory epithelium from the vitiating effect of water.

The fact that everyone who swims or dives does not contract some ear or nasal infection is no more an argument for the swimming pool than that scarlet fever is not contagious because everyone exposed to it does not have that disease. Neither is it true that the expert swimmer or diver is immune to these infections; for Dr. Rothrath has reported that a large percentage of the members of the American Swimming Team of the Olympic games in 1926 came back from Paris with discharging ears.

The prevention of aural and paranasal sinus infection should be approached from many angles:

First, avoid chilling of the body surfaces thereby lowering resistance and becoming more susceptible to organisms normally harbored in the upper air passages or organisms which may be encountered in the water. It is therefore suggested that a time limit of forty-five minutes be placed on the use of a pool by each bather in order that the loss of body heat due to chilling may be minimized. If we were to wrap a wet blanket about our body and sit in a basement for forty-five minutes we should expect to contract a cold. Yet, the ordinary swimmer does not consider how foolish it is to swim for twenty minutes in an indoor swimming pool not exposed to the sunshine and then to lounge around on the cold tile in his wet suit.

The Committee appointed by the Ear, Nose and Throat Section of the American Medical Association to study the otorhinologic hygiene of swimming, feels that persons with wide open nasal passages, straight septums and normal turbinates should not be denied the privilege of swimming, while those with contorted nasal passages, especially if there is a previous history of sinus disease or so-called catarrh and those in whom the turbinates are prone to engorgement or are actually hypertrophic should not be allowed in the water. Individuals with adenoid obstruction, discharging ears or perforated eardrums must not dive or swim. It is suggested that oiled wool or other effective measures of closing the external auditory meatus be advised in order to prevent external otitis.

Proper habits of breathing during the crawl stroke or the dive must be taught, exhalations through the nose whenever the face is submerged and inhalation through the mouth whenever the mouth is out of water. This should be taught during the first floating lessons before actual diving or swimming takes place.

Such organizations as the Boy Scouts of America, or schools which require a certain amount of swimming and diving, unknowingly jeopardize the health of those members who have physical defects which make them bad swimming risks. Boys are required to undergo these tests before they become Eagle Scouts or make other advances. This committee proposes to take the matter up with the executives of the Boy Scout Movement and hopes to have favorable action so that boys who have sinus infections, chronic discharge of the ears and perforated eardrums shall not be required to undergo diving tests before they are awarded their Eagle Scout Badge. The question of reducing infections of the ears and paranasal sinuses is a matter of educating the public in regard to it. The responsibility falls not only upon the sanitarians, public health officials, and the otorhinologists; but this is an important phase of preventive medicine to which everyone in medicine, particularly the family physician, should lend his help and support.

OBESITY: ITS PENALTIES AND ITS TREATMENT*

By JAMES S. McLESTER, M.D.,
Birmingham, Ala.

Interest in obesity is taken from two standpoints. One group of people wish to avoid obesity because it is stylish to be thin. We have not a great deal of sympathy for these people. Another group, and these are the people who need our help, seek to avoid excessive weight because it lowers efficiency, interferes with bodily comfort, and curtails longevity. Obesity imposes a heavy handicap upon its victims. The committee has kindly provided us with a patient whose condition of excessive overweight places her in the latter group. I shall ask Dr. Bailey to tell us briefly of the history.

Dr. Bailey.—This patient, a negro woman of 35 years, was admitted to the hospital about three weeks ago complaining of a varicose ulcer of the leg of three years' duration. She weighed 280 pounds, and is 5 ft. 4 in. tall. Otherwise physical examination showed nothing grossly abnormal. The basal metabolism was normal and the urine negative. The white cell count was 8,750 and the red cells numbered 2,370,000. The blood pressure was 130/70.

Dr. McLester.—This patient's ideal weight is 134 pounds; therefore she is 156 pounds, or 115 per cent overweight. You will also see on the platform another patient whom Dr. Fontaine has been good enough to provide, a white woman of forty-five years. Her chief complaints are headache, ventral hernia, and fatigue. She weighs 290 pounds and is 5 ft. 6 in. in height. Her ideal weight is 149 pounds; thus it is evident that she is 150 pounds, or 100 per cent overweight. The blood pressure is slightly elevated and, beyond her hernia and evident obesity, the examination reveals nothing noteworthy. The first patient gives no clear family history of obesity, but the second states that both her father and one sister were obese. In addition, both women admit being good eaters and accustomed always to rich foods.

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*Clinic, Clinic Session, Southern Medical Association, Twenty-first Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

The Nature of Obesity.—Why do people become obese? Before attempting to answer this question it is pertinent on the other hand to inquire why it is that most people, without giving much thought to their diet and manner of living, successfully avoid obesity. Why does the normal person with scarcely a pound's variation maintain year after year his fixed weight? To explain this it is assumed that in each of us there is some sort of regulatory apparatus which enables us to maintain body weight at a fairly fixed figure. When the normal man eats too much he feels the need for more exercise. If he is unable to take this exercise, his desire for food is less, and at the next meal he eats less. True, as we grow older each of us gradually puts on a little additional weight, but this occurs with such constancy as to be regarded as physiological. It may be that the regulatory apparatus becomes less sensitive as the years go by, or that with the contentment and ease of middle age it becomes adjusted to a different level. The existence of some such mechanism, whatever its manner of control, seems likely.

Omitting from consideration those patients whose increase in weight is due to a disturbance of the organs of internal secretion and whose disability therefore cannot be attributed to simple obesity, we can divide obese people into two classes: (1) Those who eat too much or exercise too little, and exhibit therefore what has been called indolence obesity, and (2) those who remain obese even upon a normal intake of food with an abundant output of energy, and whose disability may therefore be called constitutional obesity. Patients of the first group present no real problem. To set them right it is necessary merely to correct their habits as regards intake and output, to restrict the diet and increase the exercise. Those of the other group, representing constitutional obesity, present a real metabolic problem, and it is of them that I shall speak chiefly today. The two patients we have before us are both of this group.

Many patients with constitutional obesity do not eat excessively, and yet in spite of a reasonable amount of exercise they continue to gain weight. Occasionally the diet is found to be actually below the maintenance figure and the patient remains obese with perhaps a continuous gain in weight. Evidently these patients are handicapped by some error of metabolism which interferes with the normal utilization of food.

It was at first thought that constitutional obesity is due to a lowered basal metabolism, the reverse of what obtains in hyperthyroidism. This, however, has been shown to be false. Rubner's well-known experiment on two brothers, one of them fat and the other thin, demonstrated the fallacy of this belief, for the basal metabolism of the two was practically identical. Strouse and his associates in their studies of obese people also found that there was no constant change in basal metabolism. It has become necessary, therefore, to assume some error in the manner in which the patient deals with his food, a defect perhaps in one or more of the several steps of metabolic change, which assumption has been borne out by recent metabolic studies upon these people. The authors just quoted found that the obese person does not receive from his food, particularly from meat, the same stimulus to metabolism, called specific dynamic action, which the normal person gets. Conversely, it was also demonstrated by Mason that very thin, emaciated individuals experience increased specific dynamic action from protein. Equally pertinent is the discovery of Means and Krantz that following the injection of epinephrin the obese person does not exhibit the same rise in respiratory quotient which occurs in a normal person, and that of Hagedon that in the metabolism of these patients there is some disturbance which, while permitting the ready transformation of carbohydrate into fat, limits at the same time oxidation of the latter. According to this last named author obese patients convert carbohydrate into fat and then store the fat because they are unable to burn it. We can say therefore that while we do not yet know in all of its details the exact nature of the metabolic disturbances leading to constitutional obesity, we do know that some such disturbance exists.

I have made careful inquiry into the amounts of food taken by each of these two patients, and neither of them at the present time has a caloric intake which would ordinarily suffice for the maintenance of their great weight, and yet both continue to gain. Neither presents evidence of endocrine disturbance. Evidently both of these should be classified as having constitutional obesity.

The Penalties.—Why do these patients, except for cosmetic reasons, object to obesity? The reasons for such objections are well grounded. First of all, obesity destroys efficiency. The fat man carries with him always an additional load which limits his activity, and this finally becomes the part of a vicious circle. Being less active he puts on more weight, which in turn limits activity still further.

In addition, the heart of the obese person is seriously handicapped. Increased body weight demands greater effort of this organ while the fatty changes in the myocardium render it the less able to meet these demands. Not only are there deposits of fat around the heart, but as Aschoff has shown, there are deposits between the individual fibers as well, which interfere with their contractile power and lead eventually to myocardial degeneration. The heart of the normal person increases in efficiency as the skeletal muscles of the body develop, which leads to the maintenance in health of a certain fixed ratio between cardiac efficiency and body weight. This does not obtain, however, in obesity because the increased body weight is due to fat rather than muscle and there is no compensatory increase in heart muscle. Thus it is evident in obesity that the efficiency of the heart is impaired both relatively and absolutely.

Obesity also interferes materially with comfort. People so handicapped perspire freely and often suffer from eczema. Of the two patients you see before you, one came to the hospital because of eczema of the legs due to her obesity, and the other because of a ventral hernia, the result also of obesity. Other obese patients tell of digestive disturbances, the result perhaps of lack of exercise or of liver congestion dependent upon an impaired heart. Others because of the poor circulation in the fatty layers of the skin, are more susceptible to cold and experience frequent attacks of bronchitis.

The chief objection to obesity, however, does not lie in the loss of efficiency and the discomfort which it imposes, but rather in the fact that it materially shortens life expectancy. The extent to which it interferes with longevity is shown by life insurance tables. It is well known among insurance actuaries that obese people are poor life insurance risks. The reason is evident. All of us who attended the Hot Springs meeting of this Association recall the enlightening paper by Paullin in which he told of the great frequency with which diabetes develops in the obese. Joslin also has emphasized this time and again, and every clinician has come to the realization that diabetes is a genuine danger which threatens people who reach middle age with a body weight which is 25 per cent or more above normal. And, too, obese people are poor operative risks. They take anesthetics poorly and they do not withstand infection well. We dread pneumonia in the fat person because we know that his chances of recovery are lessened by his handicap. All of which leads to the realization that as a person approaches middle age, if he would remain comfortable, preserve his efficiency, and enjoy normal longevity, he must keep his weight below or very close to the normal figure. Each of these two patients has been rendered an invalid by her obesity. To restore her comfort and usefulness and to lessen the impairment of life expectancy each must experience a material reduction in weight.

Indications for Reduction.—What do we call normal and what are the criteria by which we calculate the ideal weight? The experience tables of life insurance companies are generally accepted as standard. If the physician will keep on his desk for easy reference a copy of these tables, it then becomes a very simple matter to calculate the degree to which a given patient exceeds the normal. There are various other methods of rapid computation. A good rule is that a person's weight in kilograms should equal his height in centimeters minus one hundred. For example, a person whose height is 170 centimeters should weigh 70 kilograms, that is 170 minus 100. The extent of his obesity had best be stated in the percentage by which he exceeds the calculated ideal.

What degrees of obesity demand reduction? Should a person who is merely 5 or 10 per cent above weight be reduced? As a rule, no. It is only when his weight exceeds the normal by, say, 20 or 25 per cent that the effort should be made to reduce. It should be added, however, that there are exceptions to this rule. There are certain people who as they approach middle life should strive always to maintain their body weight at or below the normal standard, and for these a body weight which is only 10 per cent above the normal should demand reduction. This group includes particularly those who are handicapped by myocardial disease, diabetes, nephritis or gout, or who have a familial tendency toward diabetes or other metabolic diseases.

On the other hand, there are people whose excessive weight we should attempt to reduce slowly, if indeed at all. This group includes elderly people who have been overweight for a long time, and children. A rapid reduction cure in an elderly person is apt to leave him weak, anemic, flabby and sick. It may even endanger his life. And, too, it is always dangerous to restrict the amount of a child's food. Most children do not eat enough. Because food curtailment will in all probability interfere with a child's development, it is a mistake in the vast majority of instances to try to reduce the weight of a child. People who have been overweight

a long time should be reduced slowly, else through this process they will become weakened, anemic and wrinkled. The reduction cure finds its greatest usefulness in persons of middle age, as exemplified by the two patients before us.

Types of Cures.—There are two types of reduction cure: the intensive and the mild. The latter is in the majority of instances greatly to be preferred. The intensive cure should be undertaken only under exceptional circumstances, and the patient then should be under close observation, preferably in a hospital. The salient objections to the intensive cure, as I have seen it carried out, are that it reduces weight too rapidly and that it fails to re-educate the patient in the dietary habits which he must observe during the rest of his life. Only too often the patient who undergoes an intensive cure makes great effort at dietary deprivation during the period of the treatment only to drop back later into his old habits, with the result that he again gains in weight when the treatment has ended.

In all reduction cures it should be kept clearly in mind that one of the objects of treatment is to reform the patient's dietary habits and to teach him how he had best live in order to maintain always a desirable weight. If, during this period of treatment, he is given a fairly well-balanced diet in which is included the simpler foods which a normal person eats, and which approximates his minimal metabolic needs, his appetite becomes in a measure re-educated and he learns to live contentedly on a fairly restricted regime. This is not accomplished if the unnecessarily rigid restrictions of the intensive cure with its limited choice of food have been imposed. For this reason, and also because with a slower loss in weight the patient's tissues adjust themselves more completely and with less impairment of looks and vigor, the milder cure is more desirable and more permanent.

The Diet.—In arranging a reduction cure three rules should be kept clearly in mind: first, the patient should as far as possible be spared the pangs of distressing hunger; the effort should be made as far as is consistent with the restricted intake to satisfy his appetite. Secondly, his body protein should be protected. Lusk has shown that a dog can be forced to lose weight while at the same time conserving body protein, provided his diet is of good protein content though of low caloric value. Therefore, in the arrangement of the diet a fairly liberal amount of protein should be permitted. The third rule is that the reduction should be relatively slow. Life is not so short that we must hurry through the reduction. It is much better ordinarily that the obese person reduce his weight at the rate of five or six pounds a month. Indeed, the full reduction need not be accomplished all in one period. In the case of a markedly obese person it is best to get rid of, say, 20 or 25 pounds, and then to maintain this new weight for a few months with further reduction at a subsequent time. The results of this stepwise reduction are more satisfactory. Each of the patients before us should preferably be reduced in this manner. Each should eventually lose 75 to 100 pounds, but not during a single course of treatment. This reduction cure should cover a period of eighteen months or two years and should be divided into three periods of about four months each with suitable stationary periods between times.

In regard to the arrangement of the menu it is important that we give the patient a type of diet upon which, with appropriate modifications, he can subsist the rest of his life. First of all, the diet should be of low caloric value, say from 20 to 25 per cent below the calculated maintenance figure. I hasten to emphasize, however, that the maintenance diet is calculated for the patient's ideal, not for his actual weight. The rule is simple. Assume that 35 calories per kilogram provides normally a fair maintenance diet, and that to accomplish a reduction of weight a lesser amount, say 25 calories per kilogram, should be permitted. After all, the best criterion of the adequacy of the restriction is whether the patient actually loses weight upon the prescribed regimen. Oftentimes the figures above advised are too liberal, for the patient with constitutional obesity will sometimes maintain his weight unchanged upon a surprisingly small intake; it becomes necessary in such cases to restrict the diet still further.

After determining the proper caloric value of the diet, the next most important question is the amount of protein permitted. One gram of protein per kilogram of body weight should be the minimum. More is often advisable if we are to protect the patient from loss of tissue protein. We shall not go far wrong if we are a little more liberal and permit each of the patients before us 80 to 100 grams of protein daily. It is important that this be in the form of good protein such as is obtained from meat, eggs and cheese.

The fat quota of the diet is easy to fix. Because of its great caloric value just as little fat as possible should be permitted, only enough

to make the food palatable and to lend satiety. As a rule it can be said that obese people should be permitted little or no butter, no cream, no olive oil, and only such animal fats as constitute a part of the daily foods. If this interferes with bowel function, then unabsorbable fats such as mineral oil should be prescribed.

An important question always is the amount of carbohydrate and sugar which should be permitted. A large part of the energy of the diet comes from carbohydrate, and this foodstuff must be permitted in amounts sufficient to give the ration its full caloric value. Certain carbohydrate foods are preferable to others because of their higher satiety value. Thus, contrary to popular belief, the potato is preferable to bread because gram for gram the patient gets more satisfaction from the carbohydrate he eats in the form of potato than from that which he takes as bread.

And finally comes the question of sweets. A dessert taken at the end of the meal will often enhance greatly its satiety value. There is no reason for the great fear of sweets which people exhibit. Not only are simple sweets, when credited with their proper caloric value, of no harm, but when taken at the proper time they will often permit the patient to rest satisfied with a smaller quantity of food than otherwise would be the case.

REMARKS ON CARCINOMA OF THE LUNG*†

By EVARTS A. GRAHAM, M.D.,
St. Louis, Mo.

The increasing attention devoted in recent years to the subject of carcinoma of the lung has suggested to many that this form of cancer is becoming much more frequent. Whether or not there is an actual increase in its frequency remains to be proven. But, regardless of this question, there can be no doubt that cancer of the lung constitutes a sufficiently common condition to justify its removal from the realm of supposedly infrequent curiosities. Substantiation of this opinion can be found in the report of Seydel,[1] who found at the pathological institute at Munich that in a series of 10,829 autopsies 1.7 per cent (nearly 2 per cent) of all deaths were associated with a carcinoma of the lung. Of these, 73.4 per cent were metastases and 9.8 per cent were involvements of the lung by extension, but 16.8 per cent were considered to be primary tumors of the lung. These statistics of Seydel represent perhaps an extreme of frequency. But Brandt[2] more recently has shown that at the University of Riga from 1921 to 1925 primary lung tumors occurred in 10.5 per cent of all cases which at post-mortem showed the presence of tumors in some part of the body. There have been many additional articles, also, which have emphasized the frequency rather than the rarity of cancer of the lung. To a surgeon this information is important, especially with reference to the diagnosis, prognosis and treatment of cases of pulmonary suppuration.

When a carcinoma occurs in the lung, regardless of whether it is a primary or a metastatic growth, it passes through the same sort of processes that a carcinoma does in other parts of the body, namely, ulceration and infection. For this reason it is a frequent cause of pulmonary suppuration. In the experience of Singer and myself in 350 cases of pulmonary suppuration carcinoma of the lung has been present in 10 per cent of the cases. The importance, therefore, of the recognition of a carcinoma of the lung in the estimation of the prognosis of a case of pulmonary suppuration is at once apparent. The recognition of pulmonary carcinoma is important not only to those who are interested in thoracic diseases but to the neurological surgeons as well, because occasionally operations have been performed on brain tumors which were in reality only metastases from unrecognized carcinomas of the lung. In Fishberg's[3] series of thirty-six cases of primary pulmonary carcinoma, 11 per cent showed metastases to the brain or dura.

For these various reasons, therefore, it is important to consider some of the principal features of pulmonary carcinoma. Metastases from distant growths may, of course, occur in any part of the lung, and they may be either single or multiple. Primary lung carcinoma occurs in at least two and possibly three general groups: (1) those arising in the bronchial lining epithelium, (2) those arising in the bronchial mucous glands, and perhaps (3) those which originate in the alveolar epithelium. Some of the reasons for expressing a doubt about the third group will be given below.

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*Read in Section on Surgery, Southern Medical Association, Twenty-first Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†From the Department of Surgery, Washington University School of Medicine and Barnes Hospital, St. Louis.

Those arising in the lining epithelium of the bronchi usually present numerous nodules projecting into the lumen and ulcers of various sizes which have the irregular shapes, granular, firm edges and pus-bathed floor, characteristic of malignant ulcers in other parts of the body. The growth usually begins at about the level of or slightly below the bifurcation of the main bronchi, but may begin at any point lower down. For some unknown reason, however, these tumors almost always arise in the part of the bronchus which still contains cartilage in its walls. As the mass increases in size, it frequently fills the lumen of a bronchus. Partial atelectasis of lung tissue below the obstruction may result, and this is often responsible for the triangular opacities seen in x-ray films which seem larger than any shadows which could be produced by the much smaller tumors themselves. The mass also frequently invades the lung parenchyma in all directions from the site of origin, extending out from the hilus. Infection, which is the rule in these cases, gives rise to all the complications which it may produce without the additional presence of the carcinoma. Various degrees of pneumonitis, extensive abscess and cavity formation, and bronchiectasis are likely to be found in association with such a tumor, especially if it has been present long enough. There may be numerous cavities within the tumor mass itself. These discharge pus and give rise to all of the clinical characteristics of lung abscess with purulent sputum. As might be expected also, severe hemorrhages may be frequent. A suppurative pneumonitis may extend to cause gangrene of a very large portion of the lung. This process also extends often to the pleura to induce an empyema. If the tumor has spread to the pleura, a bloody effusion will almost always be present. Metastases are frequent in this type of tumor. Microscopically, a carcinoma of this type may be composed chiefly of either cylindrical or squamous cells, and there may also be many variations from these two types of cell. Watsuji[4] in an excellent article and a careful review of the literature comes to the conclusion that of the recorded cases of primary pulmonary carcinoma 32 per cent are squamous.

In the carcinoma arising from the bronchial mucous glands a frequent but not invariable finding has been that the tumor is confined to the wall of the bronchus, and especially to the submucosa. When this limitation occurs, there is usually a diffuse narrowing of the lumen of the bronchus so that it becomes a thick-walled tube with narrow lumen. There is much less tendency to ulceration than in the preceding type and therefore less likelihood of infection. In many cases a large amount of gelatinous or mucoid material has been a conspicuous feature. Microscopically these tumors usually present the appearance of an adeno-carcinoma resembling the mucous glands of the bronchi or trachea. In contrast to the preceding type of tumor, cylindrical cells are usually not seen; and instead the prevailing type of cell is cuboidal or polymorphous. Excessive amounts of mucus are frequently observed in the alveoli of the glands of the tumor. This finding is one of the most characteristic evidences of the origin of the tumor in the bronchial mucous glands rather than in the lining epithelium.

In the third type of primary pulmonary carcinoma, namely, that supposed to arise from the alveolar epithelium, the tumor as a rule is diffuse when it is first recognized. It is seen frequently to involve a whole lobe, or even the whole lung, in such a way that it appears solid and resembles somewhat the lung of lobar pneumonia during the stage of gray hepatization. On the other hand, there are often multiple nodules, roughly resembling tubercles, which may be scattered through not only one but both lungs. These nodules vary greatly in size, and their centers are often necrotic. The larger ones may be cystic. Metastases are frequent. Microscopically the diffuse form shows the alveoli nearly or completely filled with chiefly cuboidal or flat cells. Cylindrical cells are seen, but they are much less frequent than other types of cells. In some cases of this type of carcinoma the neoplasm seems to have arisen at the site of an inflammatory lesion in the pulmonary parenchyma. It has often been a difficult matter for pathologists to decide whether the hyperplasia about an old infection or a tuberculous cavity is really a carcinomatous process or not. But there seems to be a fairly general agreement that very rarely a carcinoma can arise in a hyperplastic process about an old tuberculous lesion in the lung. There has been much discussion among pathologists regarding the existence of this third type of carcinoma arising from the alveolar epithelium. It will be impossible to enter into this discussion here.

SYMPTOMS

The patient with a pulmonary carcinoma usually presents himself because of one or of several of the following complaints: cough, dyspnea, pain in the chest or bloody sputum.

The complaint from which he suffers chiefly has usually been insidious in origin, and as a rule it has been present for months before he considered it necessary to consult a physician. Commonly he regards his illness as an intractable cold. Exceptions to the insidious nature of the onset are found particularly in those cases associated with pain or hemoptysis in which cases either of the symptoms above mentioned may have occurred suddenly and in a severe form. More rarely the patients state that their illness began suddenly with a chill and fever simulating pneumonia. The first striking symptoms, therefore, may be due to comparatively late effects of the neoplasm, as for example, ulceration and infection producing pneumonitis and febrile disturbances with expectoration of pus and blood which will necessarily vary in amount. Sudden pain is usually of the pleuritic type and probably represents a metastatic involvement of the pleura. In the minority of cases, patients with pulmonary neoplasms will give a history of a long-standing pulmonary lesion, such as tuberculosis or bronchiectasis. These cases are particularly confusing unless one is on his guard. If the patient gives a history of having had an operation for a malignant tumor elsewhere in the body, suspicion should at once be aroused as to the nature of the pulmonary lesion.

DIAGNOSIS

The diagnosis of carcinoma of the lung should be made during life in practically all cases. It is difficult, however, in some cases, even after an exploratory thoracotomy with a microscopic examination of the tissue, to be sure whether the condition is one of primary or secondary carcinoma. The brilliant work of Chevalier Jackson and his associates with the bronchoscope has shown that many conditions which have arisen in a bronchus can be accurately diagnosed by the use of this instrument. But that type of case in which the carcinoma has arisen from the bronchial mucous glands and which narrows the lumen without producing ulceration may be mistaken for a benign stricture at bronchoscopic examination. Singer and I have had one such case in which our clinical diagnosis of primary carcinoma of the lung subsequently was confirmed both at operation and at post-mortem examination, although one of the best bronchoscopists in the country had reported that the bronchoscopic picture showed only a benign stricture of the bronchus. This statement is made merely to indicate that this method, like all others, has its limitations, even in the hands of a master. Occasionally a diagnosis has been made by examination of a piece of tissue which has been coughed up or which has been found plugging the end of an aspirating needle. But of necessity this opportunity will rarely be found. Exploratory thoracotomy is still in disfavor with the majority of internists, but as soon as its relative harmlessness is generally understood it will be practiced much more extensively in cases suspected of being carcinoma of the lung. But in the advanced or relatively advanced cases the diagnosis can be made almost with certainty by clinical and x-ray findings. It is impossible to discuss here in detail the various maneuvers which help to establish a diagnosis, except to state that the judicious use of lipiodol and of pneumothorax will often give convincing evidence of the existence of a pulmonary neoplasm.

Eighty per cent of all primary carcinomas of the lung occur between the ages of 40 and 70. Any patient within these age limits who develops an insidious cough with sputum which is always or nearly always blood-stained should be suspected of having a carcinoma of the lung regardless of whether or not he may have associated with it a lung abscess, an empyema or any other complication. The prognosis should therefore be guarded, and a careful search should be made for a primary focus of carcinoma elsewhere on the chance that the pulmonary lesion is a metastatic growth.

TREATMENT

Owing to the difficulty of access of most pulmonary carcinomas, their advanced stages of development at the time they are recognized and the present undeveloped state of thoracic surgery, radical treatment offers scant hope of a clinical cure at the present time. But palliative measures can be applied to many cases which give great relief. The patient with pulmonary carcinoma is usually suffering chiefly from the effects of infection of the mass, with its train of harassing cough, fever, pain and dyspnea. Much of the distress in selected cases can be temporarily relieved by measures which have as their object the providing of free external drainage of the infected mass, the destruction of as much tissue as seems feasible and the further treatment of the case with radiotherapy either by the implantation of radium packs into the wound or by deep x-ray therapy. We have found the operation of cautery pneumonectomy to be well

suited as a palliative measure in some of these cases. We have described this operation elsewhere[5] as one which we use in some cases of chronic refractory pulmonary suppuration not associated with a carcinoma.

REFERENCES

1. Seydel, quoted by Sauerbruch, F.: Chirurgie der Brustorgane, Zweite Auflage, Band I, Berlin, Julius Springer, Die Geschwulste der Lungen, p. 844, 1920.
2. Brandt, M.: Zeber primare Lungentumoren in Riga, Mitteil, a. d. Grenzgeb. d. Med. u. Chir., 39:74, 1926.
3. Fishberg, M.: Diagnosis of Pulmonary Neoplasm. Arch. Int. Med., 37:745, 1926.
4. Watsuji, S.: Beitrage zur Kenntnis des primaren Hornkresbses der Lunge. Ztschr. f. Krebsforsch., 1:445, 1904.
5. Graham, E. A.: Cautery Pneumonectomy for Chronic Suppuration of the Lung: A Report of Twenty Cases. Arch. Surg., 10:392, 1925.

DISCUSSION

Dr. J. W. Snyder, Miami, Fla.—In a general way the surgical treatment of diseases of the lungs is still in the developmental stage. Just what it will amount to in the future we do not know. Success in the surgical management of pulmonary malignancy, as in other forms of malignancy, depends upon early diagnosis. Dr. Graham has pointed out the value of x-ray findings and bronchoscopic data in early diagnosis.

Benign tumors of the lung do occur, and are usually found by chance at autopsy or occasionally at operation. Perhaps the most common is the dermoid, which is found with relatively greater frequency in the mediastinum.

The important lung tumors are malignant. They may be either primary or secondary, as metastases from growths elsewhere in the body. Three types of primary malignancy occur, namely, carcinoma, sarcoma, and endothelioma. Endothelioma offers the best operative prognosis, since it commonly occurs at the periphery of the lung or on the pleural surface, frequently involving the chest wall. It tends to recur locally rather than to metastasize widely, so that wide primary excision offers opportunity of cure.

Malignancies which supposedly arise from the epithelium lining the air cells are termed parenchymatous cancers. These are less frequent in occurrence than hilus growths. Lobectomy has given excellent results in a few cases of this type.

Root cancer involving the hilus and larger bronchi is supposed to originate from bronchial epithelium. Because of its situation in close association with the hilus structures the surgical management is very hazardous and difficult. The bronchi, by compression or involvement in the growth, tend to become obstructed. Such obstruction will result in atelectasis of the distal lobe provided no infection is present within the bronchial tract. If infection is present with impaired drainage various types of pulmonary suppuration such as bronchiectasis, abscess, gangrene or empyema may result. Infection then tends to dominate the picture. Pulmonary infection occurring in a patient of cancer age should arouse a suspicion of pulmonary malignancy, especially if no causative factor can be found for the onset of pulmonary infection. Ultimate cure of such a lesion is not to be expected, but much can be done to alleviate suffering, especially with the idea of eliminating the factor of suppuration, as has been pointed out by Dr. Graham.

Finally I wish to congratulate Dr. Graham on his pioneer work in this field of surgery.

VOMITING OF PREGNANCY*

By L. A. CALKINS, M.D., PH.D.,
University, Va.

Vomiting of pregnancy (hyperemesis gravidarum) is the most frequent complication of early pregnancy. It is difficult to decide concerning any case of vomiting of pregnancy whether it is neurotic, reflex or toxic in nature. We still cling to this etiologic classification into the three types, namely, neurotic, reflex and toxic, but practically pay but little attention to this etiology in our handling of the cases. We find that some cases are mild and that they respond with a minimum amount of treatment. We find that other cases are moderately severe and that they require a more definite regime, and occasionally we find a severe or "pernicious" case which requires the most careful handling. We are coming more and more to the belief that all cases of vomiting of pregnancy are one and the same condition and that they differ from one another only in the degree of severity. We are becoming quite as anxious that the mild cases cease vomiting entirely as we are to cure the severe cases.

We find that all of these people are undernourished, at least qualitatively. We even believe that, could we have the opportunity, we would be able to prevent the majority of cases of vomiting simply by dietary measures. The severe vomiting case will, on careful examination, reveal signs of loss of weight and even acidosis. The milder case may not show actual loss in weight but does reveal a failure to make the usual gain in weight for normal pregnancy. An increased carbohydrate intake causes both the severe and the moderate case to gain in weight and this gain in weight is associated with the disappearance of the vomiting and, later, the nausea. Our treatment is aimed entirely at increased carbohydrate nutrition. In the mild case we sometimes advise our patients to increase their intake of bread, potatoes and pastry, and find on their next visit that they have gained from three to eight pounds in weight and that their symptoms have disappeared very promptly.

*Clinic, Clinic Session, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

In the severe cases we put the patient to bed, give her enough sodium bromide to paralyze her vomiting reflex and then fill her full of food. If she shows acidosis, as revealed by diacetic acid and acetone in the urine or by an increased percentage of ammonia in the urine nitrogen, we also give her glucose intravenously. Intravenous glucose will clear up this acidosis quite promptly. We do not use the glucose, however, unless acidosis is present, as we do not believe it necessary. We find that the clinical symptoms clear up very promptly in all these patients and that on the whole they remain free from symptoms thereafter. If, however, the patient becomes careless about her diet and does not ingest a sufficient amount of carbohydrates, there is a tendency toward the return of the vomiting. If she has in the meantime regained all the weight that she had previously lost and has in addition put on as much as seven or eight pounds, we can confidently predict that there will be no return of symptoms, even though she be careless about her diet thereafter. It seems that the gain in weight is the essential factor. It does not make much difference whether the patient be neurotic, whether she has a reflex disturbance, or whether she has been previously classified as a toxic vomiting case. I do not mean to say that we neglect to look for pelvic and rectal pathology that might be contributory to the vomiting. We are very careful about this and have found several cases of displacement of the uterus, hemorrhoids and small foci of infection that, no doubt, have been contributory, but all of these people have, in addition, either lost weight or have failed to gain. Incidentally we have noticed that we can divide the cases of mild vomiting into two groups and predict to a certain extent the course that each of these groups will follow. In one group we find women who eat in spite of their nausea and who, should they vomit, will immediately eat another meal. The women in this group rarely become so very much worse. In the other group are the women who, because of their nausea and loss of appetite, fail to eat. We can be fairly sure that these women will become considerably worse unless they somehow acquire an appetite later.

Some people like to have a routine to follow. I am, therefore, rehearsing briefly what our interns call the "routine vomiting treatment." A patient with severe or moderately severe vomiting is admitted to the hospital, put to bed, and placed on a twenty-four hour starvation period. Nothing at all is allowed by mouth. This serves to allow the stomach to overcome its hyperexcitability, which has been evidenced by the constant retching of these patients. The lower bowel is thoroughly cleaned out with enemata, after which sixty grains of sodium bromide in two or three ounces of water are given with a small catheter per rectum every six hours. We insist upon absolute adherence to the six-hour schedule, as it seems that the effect of the bromide in the early stages of treatment does not last much over six hours. We use the small catheter and the small amount of water to diminish the tendency toward expulsion of the medication. Although we do not have much trouble from this source, an occasional patient has difficulty in retaining the medication. In that case we elevate the foot of the bed fifteen to eighteen inches. This causes the bromide to go higher in the colon and removes the tendency toward expulsion. This dosage of sixty grains every six hours makes a total of two hundred and forty grains a day, enough to more or less paralyze the vomiting reflex and to cause the patient to become quite "dopey" by the end of twenty-four to thirty-six hours. Usually there is no further vomiting after the second dose has been given and the patient is able to eat almost anything by the end of the twenty-four hours and to retain it without difficulty. We begin feeding the patient at the end of twenty-four hours and rather rapidly increase her diet to twenty-five hundred or three thousand calories, or even more, composed largely of carbohydrates.

Two hundred and forty grains of sodium bromide is a rather large dosage and we, therefore, watch these patients quite carefully in order to determine when we may, with safety, decrease the dosage. Usually this decrease is possible at the end of two or three days. We then drop to fifty grains to the dose, making a total of two hundred grains in the twenty-four hours. Our next drop, two or three days later, is to forty grains, making a total of one hundred and sixty grains in twenty-four hours. This dosage is continued for a like period when, at the end of about a week from the beginning of the treatment, we can commence oral administration, which is continued in doses of fifteen or twenty grains three or four times a day, sometimes over a rather extended period, depending upon the rapidity of gain in weight. The high carbohydrate diet is continued until the patient has gained eight or ten pounds when the emphasis is changed to the proper diet for normal pregnancy. We do not wish to see these patients put on too much weight, as it is possible to get

bad results in that direction. The milder cases of vomiting usually respond to small doses of bromide, fifteen or twenty grains three or four times a day, plus a high carbohydrate diet, and rest in bed or rectal medication is unnecessary in these cases.

We have due respect for the physicians who are employing the high fluid intake for vomiting cases, because these patients are dehydrated. We have noticed that our patients voluntarily take a large amount of fluid, and that it is unnecessary for us to emphasize this. They desire fluid as soon as they are able to retain it. We also have great respect for those who emphasize the glucose treatment, since they are providing in another way the carbohydrates which we feel are necessary. In general, however, these patients will be able to take a sufficient amount of carbohydrates by mouth once their vomiting is stopped. The intravenous method of administration is unnecessary except in very severe cases and then only for a short time until the carbohydrate diet is well under way. I do not believe that we average more than one intravenous administration per patient. Most of the patients get no glucose at all intravenously and very few get more than two or three doses. To summarize then, the carbohydrate diet to a point of producing a gain of six or eight pounds in weight is the important thing. The sodium bromide is used only to enable the patients to retain the diet given them.

Our results have been very satisfactory. We have treated over two hundred vomiting cases and, so far, have not failed in a single case. We believe that therapeutic abortion for vomiting of pregnancy is rarely, if ever, necessary unless the patient has been sadly neglected over a very long period of time. In these cases it is often too late for a therapeutic abortion.

There are four noteworthy features of this plan of treatment:

(1) It brings results very quickly and does not leave the physician long in doubt as to the outcome.

(2) It can be carried out in the home almost as satisfactorily as in the hospital, provided a nurse or some other attendant will follow directions explicitly.

(3) It does not require elaborate laboratory examinations and tests, the most important single test being that for acetone in the urine. The general practitioner is, therefore, quite as able to treat cases by this method as is the specialist.

(4) It does away with the necessity of therapeutic abortion.

There are two complications which sometimes arise in connection with this treatment. One is the so-called bromide rash, a papular eruption which is usually symptomless. This rash invariably disappears when the medication has been stopped and rarely persists longer than two or three weeks. We noted this rash in perhaps 5 per cent of our cases. The second complication, a very infrequent occurrence, is bromide psychosis. This psychosis may be very mild or quite marked. It is, of course, quite disturbing to the relatives and friends of the patient, but one can give them the definite assurance that it will be only temporary and that it will clear up. The prognosis is quite as good as is the prognosis in post-operative psychosis following major surgical procedures. It seems that the incidence of bromide psychosis is approximately the same as that of post-operative psychosis, something less than 1 per cent. These are the only complications that have occurred in our experience, and we do not regard them as significant in comparison with the excellent results obtained with respect to the vomiting and with respect to the saving of fetal life.

TUBERCULOUS INFECTIONS IN CHILDHOOD*

By C. C. McLEAN, M.D.,
Birmingham, Ala.

Tuberculous infection in childhood is not an uncommon condition. The number of infected children varies greatly in different countries and the variation is just as great in different localities in the same country.

Von Pirquet,[1] in 1909, published statistics from Vienna on 1,134 children up to 14 years of age. He showed that 70 per cent of children of all ages give a positive tuberculin skin test and that 90 per cent at 14 years of age react positively to tuberculin.

F. Hamburger and R. Monti[2] obtained slightly higher percentages. They found 9 per cent positive at 2 years of age and 94 per cent positive at 14 years.

On the strength of these publications, and for no other reason, the medical profession in this

*Read in Section on Pediatrics, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

country ignored the value of the tuberculin tests, not taking into consideration that one death in every five in Vienna is from tuberculosis and that nearly every child is a direct contact. Even today the majority of the profession, and this includes the pediatrician as well, considers the test of little value.

Dr. Frolich,[2] Professor of Pediatrics in the University of Oslo, in 1912 tested 2,900 school children, age 7 years, with tuberculin and found positive reactions in from 83 to 84 per cent. Only 104 children (4.3 per cent) presented actual symptoms of a tuberculous disease.

In 1925, 2,200 of these patients were reexamined at the age of 20 years. It was found that many deaths from tuberculosis had occurred in the later years of childhood and after puberty, both among those who had presented symptoms and those who had only given a positive von Pirquet reaction.

Autopsy statistics from Norway,[3] Sweden and Denmark show that half of the deaths between the ages of 16 and 30 are caused from some form of tuberculosis.

J. J. Viton[4] states that most of the adult infections are merely the flaring up anew of childhood infections.

Frances Harbitz'[3] investigations, both anatomic and clinical, seem to point to the fact that it is mainly the tuberculous infections in childhood that form the basis for tuberculosis in youth. He states further that there is no doubt that the modern methods have reduced considerably the morbidity and mortality among children and also among adults. And there is every reason to hope that this reduction can be increased from year to year, but it is a regrettable fact that no one as yet has succeeded in reducing the mortality from tuberculosis in youth, when the disease is more prevalent than in any other period of life.

From the above observations and statistics it seems logical that the way to remedy this condition is to recognize the infected cases in early childhood and to safeguard these children in every way possible. This can be accomplished only by intelligent and practical application of information obtained from the tuberculin skin tests.

We should like to report 1,005 tuberculin tests done on children in Birmingham, Ala.:

TUBERCULIN TESTS

	No. Cases	Negative	Positive	Per Cent Positive
Children's Hospital	92	82	10	10.8
Hillman Hospital	73	63	10	13.7
Mercy Home	80	60	20	25.0
Private Patients	760	706	54	7.1
Total tests	1,005	911	94	9.35

It is interesting to note Birmingham's 9.35 per cent positive reactions in comparison with Philadelphia's 32 per cent, New York's 36 per cent,[5] St. Louis' 46 per cent, Paris' 75 per cent and Vienna's 95 per cent.

Tests.—The intradermal test with human tuberculin was used at the Children's Hospital, Hillman Hospital and Mercy Home. In the majority of the private patients the von Pirquet and intradermal tests, with both human and bovine tuberculin, were done.

Children's Hospital Cases.—Of 92 cases, 82 were negative and 10 positive, or 10.8 per cent were positive. Of these children, 32 were under 3 years of age and 60 between the ages of 3 and 14. Two of the 10 positive cases were open tuberculous hip infections; one an open tuberculous knee infection; one had phlyctenular conjunctivitis. The other six cases reacting to tuberculin presented no physical or clinical signs of a tuberculous disease. The family and contact histories were not complete in all of these cases and will not be considered.

Hillman Hospital Cases.—Of 73 cases, 63 were negative, and 10, or 13.7 per cent, were positive. In this series there were 51 colored and 22 white children. Eight, or 15.6 per cent, of the 51 colored children reacted to tuberculin. Of the 22 white children, only two, or 9 per cent, reacted positively.

Twenty-four of the 73 children tested were under 3 years of age; 49 were between 3 and 12 years. Two of the 10 children reacting to tuberculin presented typical pictures of tuberculous peritonitis, and two had unresolved pneumonia. The other six children gave no physical signs or symptoms of tuberculous disease. The family and contact histories were so unsatisfactory in this series that they will not be considered.

Mercy Home Cases.—Of 80 cases, 60 were negative and 20, or 25 per cent, were positive. Four of the children tested were under 3 years of age; 76 were between 3 and 14. A family history of tuberculosis with known exposure was obtained in each of the 20 positive cases, 16 of the 20 children having had at one time, or have at present, one or both parents in the Red Moun-

tain Sanitarium. The Mercy Home seems to be a clearing house for the children of tuberculous parents.

Private Patients.—Of 760 cases, 706 were negative and 54, or 7.1 per cent, were positive. These cases will be reported more in detail. Forty-nine of the children tested were under one year of age. Forty-two of these were negative and seven positive. Ninety-six children tested were between the ages of 1 and 2 years, 82 giving negative reactions and 14 positive. Six hundren and fifteen children were between 3 and 14 years of age, 581 negative and 44 positive. Of the seven children under 12 months of age reacting to tuberculin, two were infected by negro nurses; one from living in the house with a patient who had an open case of tuberculosis; one was infected by her grandmother; three were infected by their parents, two by the father and one by the mother.

Thirty-four of the 54 patients of the private practice series reacting to tuberculin give a definite history of exposure to open cases of tuberculosis. In three cases giving negative contact histories, it was found that either the father or the mother had an open case of tuberculosis.

There were several other children with parents who were suspected of having tuberculosis, but in whom it could not be definitely proven.

There were 49 patients in the private practice series who gave a definite history of contact with tuberculous individuals. Thirty-four of the 49 reacted to tuberculin; 69.3 per cent of the known contacts were positive.

In the Mercy Home series there were 24 patients who gave a contact history, 20 reacting to tuberculin; 83.3 per cent of the known contacts were positive. The larger per cent of positive reactions in the Mercy Home series is explained by the more intimate contact, the parents being infected in each case.

In the positive cases from the private practice and Mercy Home series were 13 families with 29 children, 24 reacting positively to tuberculin and five negatively, or 82.7 per cent positive.

From the Mercy Home and private practice series were 766 children who gave no contact history of exposure to open cases of tuberculosis. Seven hundred and forty-six gave negative reactions to tuberculin and 20 positive; 2.6 per cent of non-contact children were positive.

The most common sources of infection in 74 positive reactions were as follows: parents 39, grandmothers 6, uncles or aunts 4, negro nurses 5, friends 2, and unknown 18.

Among the unknown sources of infection the following possibilities should be considered: school teachers, servants (both public and private, for example, janitors, street car and railroad employes) and friends of the family, especially old people with chronic lung disease.

Infections from cattle should also be given due consideration.

Among the 94 positive cases there were only 15 children, or 15.9 per cent, who had clinical symptoms and physical signs of an active tuberculous disease.

There were three bone cases, two tuberculous hips, one knee, two cases of tuberculous peritonitis, two unresolved pneumonias, three of phlyctenular conjunctivitis, and two of cervical adenitis.

Four children had persistent temperature of undetermined origin, with indefinite signs in the chest and positive x-ray findings.

Complications.—In the private practice series, three of the seven infected children under 12 months of age died from tuberculous meningitis.

During the past two years at the Mercy Home there were two deaths and one complication in children who presented no clinical symptoms or physical signs of tuberculosis at the time the tests were made.

One child, aged 4, died from pulmonary hemorrhage. Two sisters, aged 3 and 6 years, developed measles and ran a temperature for months. The 3 year old child died from tuberculous meningitis. The 6 year old child, during the past few months, has developed a tuberculous knee.

MANAGEMENT

The following methods are being used in our practice:

Every child reacting to tuberculin is given the benefit of the doubt and treated as though it were an active infection.

Children with tuberculous infections have a reduced power of resistance. Such children are safeguarded in every way possible. The danger from infectious diseases is explained to the parents. Whooping cough and measles will often cause an inactive case to become active.

The hygienic conditions in the home are investigated and regulated in every way possible.

Forced feeding, fresh air, sunlight and rest in

bed from two to six hours a day are recommended in every case.

It is explained to the parents that the most dangerous period is at puberty. At this time the children should be especially safeguarded from overwork, both mental and physical. Rest, sleep, nourishing food, sunlight and fresh air are more important at this age than at any other.

In each case a picture is made of the chest, a second picture being made at the end of six months for comparison. It is then advised that a picture be made once each year. Each child is given two series of ten exposures to the quartz lamp. The parents are advised to bring the children to the office every three to six months for an examination.

The following are some of the results and observations from our limited experience. Malnutrition plays a small part in tuberculous infections. We found malnutrition no greater in infected than in non-infected children.

X-ray pictures are either positive or suggestive in about 70 per cent of the cases.

With the exception of a very few patients, the infected children during the period of the quartz lamp treatments, gained two or three times as fast as normal children of the same age. There were no deaths or complications in any case that was treated as above outlined.

In the private practice series, the three infected children under 12 months of age who died from tuberculous meningitis did not receive the quartz lamp treatment. The four living cases were treated. The first child was five months of age when the infection was recognized. She is now four years old and apparently in good condition. The second child was nine months of age when the test was made. She is now 3.5 years old. The third child was eight months of age and is now 2.5 years old. The fourth case was four months of age and is now nine months old.

SUMMARY

(1) The number of children reacting to tuberculin in Birmingham, Ala., is smaller than that from any city from which we have seen reports. This can be explained largely by the isolation, during the past ten years, of open cases of tuberculosis in the Red Mountain Sanitarium.

(2) Of 766 children giving negative contact histories, only 20, or 2.6 per cent, reacted to tuberculin.

(3) Of 73 known contact cases, 54, or 73.9 per cent, reacted positively to tuberculin.

(4) The sources of infection in 74 positive cases were: parents 39, relatives 10, negro nurses 5, friends 2, and unknown 18.

(5) The number of infected children apparently is directly proportional to the number of open cases of tuberculosis with which they come in contact.

(6) Every child reacting to tuberculin should be given the benefit of the doubt and managed as though it were an active infection. If this were done, the mortality from tuberculosis in childhood and in young adult life would probably be greatly reduced.

(7) If it were practical to hospitalize, colonize and sexually sterilize all cases of open tuberculosis, in a few generations tuberculous infections in childhood would be a thing of the past.

BIBLIOGRAPHY

1. Von Pirquet, Clements: J. A. M. A., 52:675-678, Feb. 1909.
2. Hamburger, F., and R. Monti: Munchen Med. Wechnschr., 56:449-451, 1909.
3. Harbitz, Frances: Tuberculosis in Childhood. Amer. Jour. Dis. Child., 33:458-471, March 1927.
4. Viton, J. J.: Semana Med., 28:473, April 1921.
5. Smith, C. H.: New York Tuberculosis Association, 4:2, March-April 1923.

2012 Tenth Avenue, South.

DISCUSSION (*Abstract*)

Dr. Alfred A. Walker, Birmingham, Ala.—So far as I know, Dr. McLean's series is the broadest study of this subject which has been done in Alabama. He has brought out the importance of contact with known cases of tuberculosis and the extreme frequency with which contact results in a positive reaction to tuberculin. Dr. F. P. Gengenbach, who is a guest of our Section, and I had the privilege of working in Vienna at a time when Pirquet was gathering his statistics in Austria. We were all struck with the enormous percentage of positive reactors in Austria and Germany. After returning to this country I found that the instance of positive reaction was very much less than I had been led to believe from my studies in Austria. Anyone who has lived in Germany knows that the German is afraid of fresh air, and therefore, it is not surprising that our records are much better than theirs.

Dr. Horton Casparis, Nashville, Tenn.—I am glad Dr. McLean considers the tuberculin test necessary in determining the incidence of tuberculosis in children. Attempting to diagnose tuberculous infection or early tuberculosis in childhood without the use of the tuberculin test is mere guess work. The test properly used will give a positive reaction in practically 100 per cent of infected children, and the only safe policy to pursue is to consider every infected child a potential case of tuberculosis. If we assume this attitude toward tuberculosis in childhood we can go a long way toward controlling the disease. In this we have our strongest preventive approach, for the tuberculin test enables us to find tuberculosis in its earliest form, and it is well

known that with proper corrective measures and proper hygiene, tuberculous infection or early tuberculosis in children will almost invariably become latent or arrested. I have followed between six and seven hundred of these children over a period from two to five years, and it is unusual in such cases to see the disease progress.

I should like to say one word more about the tuberculin test. It must be remembered that the Pirquet test is inadequate in that it will give not more than 50 to 75 per cent positive reactions in those infected. It is therefore necessary to use the intracutaneous test in which larger amounts of tuberculin may be given to secure practically 100 per cent positive reactions in infected individuals.

Dr. McLean (closing).—We wish to call especial attention to the following facts.

An early diagnosis of tuberculosis in childhood can be made only by the tuberculin skin test.

The number of children reacting to tuberculin is not nearly so great as is generally thought, and this number could be considerably reduced if the parents were better educated to the danger of allowing infants and young children to come in contact with tuberculous individuals.

Too little attention has been given to the importance of periodical medical examinations of nurses and other servants of the home.

We feel that if the medical profession did not ignore the importance of the tuberculin skin test in children, the mortality of tuberculosis in youth could be reduced in the same proportion as in adults.

In answer to Dr. Casparis' question, we use as a routine a 1-1000 solution of tuberculin and inject intracutaneously 0.1 c.c., a fresh solution being made every third day.

ACUTE EPIPHYSITIS AT THE UPPER END OF THE FEMUR: PATHOLOGY AND TREATMENT*

By KELLOGG SPEED, M.D.,
Chicago, Ill.

To limit the intention of these remarks, the following definition is offered:

Acute epiphysitis at the upper end of the femur implies acute inflammation, a phlogistic process in children caused by a pyogenic infection of the proximal (capital) epiphyseal area of the femur, possibly starting in older children on the diaphyseal side. The process usually results in fever, raised leucocyte count, constitutional evidences of sepsis or pyemia, the formation of pus, early invasion of the hip joint, a tendency to metastatic multiple abscesses not necessarily limited to bones and joints, a difficult clinical recognition and a high mortality.

Clinical experience shows that an early recognition of this condition is both life-saving and tissue-saving, inasmuch as important structures about the hip may be spared destruction and disability in the limb avoided. To refresh one's mind with the pathological conditions involved will lead both to earlier clinical recognition and more logical treatment.

PATHOLOGY

The blood supply of the epiphyses conforms to type. Poland said that the epiphyses obtain their blood supply from the network of periosteal arteries, branches of which perforate the compact bone to be distributed throughout the cancellous bone independent of the diaphyseal blood supply. He believed that rarely more than one or two small arteries pass over into the epiphyses from the diaphyses, which fact would account for the infrequent occurrence of necrosis of the epiphysis when the diaphysis is more or less completely displaced from the epiphysis.

The blood supply of the epiphysis of the femur under discussion has recently been investigated by Kolodny. It is found that there are four sets of blood vessels in the head and neck of the femur of new-born infants and children:

(1) Blood vessels extending from the diaphysis of the femur.

(2) Epiphyseal blood vessels proper.

(3) Blood vessels arriving via the ligamentum teres.

(4) Periosteal blood vessels.

The first come from the superior nutrient artery of the femur and may cross the epiphysis to enter the head.

The second enter the head along the edge of the articular surface, one group from above, one group at the insertion of the joint capsule on the inferior aspect of the neck.

The third are ligamentum teres vessels, usually two in number, which come from the obturator artery and are truly epiphyseal in character.

The fourth from the periosteum of the neck penetrate many important vessels which are both intra- and extracapsular.

BACTERIOLOGY

The organisms involved in acute epiphysitis of the upper end of the femur are those found in osteomyelitis of adolescents, principally staphylococcus and streptococcus, rarely other forms. Skin lesions, tonsillar and nasal infections, pneu-

*Read in the Section on Bone and Joint Surgery, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

monia, acute infectious diseases and other foci supply the bacteria to the blood.

Localization of the infection in the upper epiphysis of the femur is aided by the rich blood supply and probably by trauma as in ordinary hematogenous infection of bone in childhood.

COURSE OF EPIPHYSITIS

Over just which route infection arrives in the epiphyseal area in any given case is difficult to say. The inflammation once started rapidly involves the epiphyseal area, and spreads by pressure and continuity along the cartilage plate to involve much of the blood supply by thrombosis or direct contamination.

The hip joint must of anatomical necessity be early included in the involved area. Thrombosis, the trauma of weight bearing even in the presence of pain and direct extension lead to coxitis. This process is probably very rapid, taking place in a few hours. The hip joint becomes distended, the limb seeks a position of flexion and internal rotation, immobilized by its own muscles to guard against pain. Limited necrosis of the cartilage plate, bursting of the hip joint capsule and dissemination of the pus into the surrounding tissues follow. The cartilage of the head of the femur, or sometimes the acetabulum, becomes necrotic and dies. The infection may spread down the diaphysis of the femur or into the pelvic bones or subside.

Epiphyseolysis may occur at this stage and the femur separates at the epiphysis, either slowly or rapidly, depending on whether trauma or weight bearing is a factor. If the disease stops at this stage it may be confused with Legg-Perthes' disease or osteochondritis juvenilis of the hip joint, because the presence of pus is not recognized and no clinical evidence of it is ever seen, yet the capital epiphysis loses its normal shape, flattens and permanent changes in the neck of the femur remain.

COMPLICATIONS OF EPIPHYSITIS

The development of the complications continues at a relatively slower pace. The head of the femur becomes a sequestrum retaining its density and has a relatively deeper shadow when compared with the surrounding bone. Granulations and bone absorption appear in the epiphyseal area. Bone softening progresses a varying extent down the femoral neck. The hip joint capsule retracts and pus burrows along the psoas muscle or posteriorly along the neck of the femur, limited by muscles and fascial layers. The distended hip joint loses its synovia in large part, laxity of the joint occurs, and pathologic dislocation aided by gravity as the patient lies in bed, flexion of the limb, and spasm of the flexors and adductors may occur. New bone formation begins from the diaphysis or the eroded surface of the acetabulum or pelvis. Pyemia follows or is a continuation of the original infection. Secondary abscesses, septic pneumonia and endocarditis complicate the situation. Sinuses may open spontaneously around the hip; urinary obstruction from pressure on the urethra, cystitis, decubitus ulcers and other points of osteomyelitis in the sacrum and ilium follow from prolonged bed pressure and lack of cleanliness. The patient may thus end in misery, bedridden, with an infected urinary tract and loss of superficial tissues on the back.

The head of the femur usually follows the neck into pathologic dislocation even though separated by epiphyseolysis.

Should the patient survive the acute and subacute stages, avoiding decubitus and urinary tract complications, he may again become ambulatory, usually with adducted leg, sinuses from bursted abscesses or operative drainage about the hip, sequestrated femoral head, considerable loss of range of motion in the hip joint or pathologic dislocation and the formation of a new adventitious acetabulum at the point of pressure from weight bearing. The original acetabulum fills in with granulation or fibrous tissue which may later become bony. The femur may become bonily fused with the ilium at its new situation; it may become ankylosed at the site of the original hip joint or some restricted range of motion may endure after the process has quieted down.

Differential diagnosis of this acute epiphysitis in its various stages includes:

(1) Osteomyelitis of the upper end of the femur (diaphysis).

(2) Acute primary suppurative coxitis, which is probably very rare.

(3) Acute osteomyelitis of the ilium, which may closely simulate epiphysitis or extend into the hip joint.

(4) Acute appendicitis.

(5) Cystitis and pyelitis or acute septic kidney.

(6) Acute psoas abscess, which is usually metastatic.

(7) Traumatic separation of the upper epiphysis of the femur.
(8) Fracture of the neck of the femur, not through the epiphysis.
(9) Tuberculosis of the hip joint.
(10) Dislocation of the hip.
(11) Legg-Perthes' disease, osteochondritis deformans juvenilis coxae.

The direct diagnosis in the early stage is made by the history of an acute onset, fever, leucocytosis and pain referred to the right hip region. Depending on the age and intelligence of the child, one may be able to localize the exact site of pain and tenderness. The one outstanding feature is pain or fear of pain when the femur is moved. A point of tenderness may be found anteriorly over the neck of the femur but frequently the pain is felt all about the hip region or even in the right lower quadrant of the abdomen. Diagnostic thumping or pressure of the greater trochanter of the femur is not always enlightening.

In the early stage, when diagnosis is imperative, the roentgenogram is of no help. Later, within seven to twelve days, changes appear in the head and neck of the femur and in some cases epiphyseolysis may start. The head of the femur retains an original density as compared with a rapid atrophy of disuse with calcium loss in the adjacent bones.

The head does not tend to fragment very much but appears to be sequestrated. The normal trabeculation in the upper part of the diaphysis becomes indistinct, and mottling appears. When the patient is operated upon at this stage the head of the femur is found in a joint which usually has ruptured, partly dead, surrounded by recently formed granulation tissue with some bone absorption in both head and diaphysis. Distinct pus may be wanting in mild cases; it is always present in fulminating cases. Along with these findings go great prostration, dehydration and intoxication. The patient is very ill.

POSSIBLE RELATION TO LEGG-PERTHES' DISEASE

The severity of all acute infections varies. Acute epiphysitis of the upper end of the femur is probably no exception. The symptoms outlined above are characteristic of a fulminating dangerous infection. By analogy with osteomyelitis in other parts of the body one may conceive of a condition in which this infection is not overwhelming. The process may not only be milder, the organism less virulent, the patient's resistance greater and the diseased condition less extensive, but also tissue destruction and end-result may be slower and less widespread.

May one not believe, therefore, that in the very mild forms epiphyseolysis may follow weight bearing or a sudden trauma from jumping or falls on a femur, the seat of this type of infection, when the process has been going on subacutely for some time and no clinical recognition has been given it? Pathologic dislocation is far less liable to follow the mild case because there is much less muscle spasm.

In a case of Perthes' disease operated upon, Phemister (*Archives of Surgery* 2:221) says that the pathologic examination indicates strongly the infectious nature of the disease: the extensive bone destruction, sequestrum formation, the presence of granulations and organizing fibroblasts, constitute a picture frequently seen in quiescent osteitis of the shaft of bones. In this case a failure to obtain a bacterial growth was not considered final in ruling out infection.

Concerning Perthes' pathologic report (*Arch. f. Klin. Chir.* 60:779, 1913) Phemister was inclined to believe that the specimen of bone removed was not taken deeply enough to enter the infected broken down area. Müller, discussing the clinical importance of necrosis and changes in structure of the head of the femur after separation of the epiphysis from trauma or luxation (*Beitr. z. Klin. Chir,* 132:490-522, 1924) concluded after extensive research on dogs, cats, guinea pigs and rabbits that a healthy femur may develop a typical picture of juvenile deforming osteochondritis at the hip joint after epiphyseal separation on account of local circulatory disturbances, especially when involved in fracture, the picture being one of a sequence of pathologic processes and not a definite clinical entity. He, however, considered that the secondary bone changes still await explanation. Other writers are inclined to favor belief in an infectious cause of Legg-Perthes' disease (Balensweig, *Surg. Gyn. and Obst.* 43:604, November, 1926).

The end-results after two or three years' roentgenological study fail to show any difference between drained and healed acute epiphysitis and Legg-Perthes' disease.

TREATMENT OF ACUTE EPIPHYSITIS

The first and most important step is to make the diagnosis. This must follow after getting the history of onset, fever, tenderness about the hip, immobility and flexion of the hip, leucocytosis and a negative roentgenogram. The film

made early in the course of the disease may show a slight widening of the hip joint, but rarely any blurring. Tenderness in the joint is difficult to localize.

Diagnostic puncture, followed by aspiration of the hip joint, is usually misleading. One has difficulty entering the joint and many punctures are consequently dry. If the joint is entered, a thin sero-pus containing leucocytes and organisms may be obtained.

If the diagnosis can be made, the hip joint should be opened surgically to relieve pressure and give drainage. In the early case, the slightly distended joint yields a thin bloody watery pus, not yellow, not thick.

The hip joint may be easily and quickly opened by an anterior approach in Scarpa's triangle. Fluid found in the joint is cultured and smeared. The capsule is incised widely enough to permit free exit of all joint exudate and a small rubber tube drain is inserted down to the joint, not into it. One may irrigate this wound and joint with Dakin's solution if it is thought desirable.

After opening the hip leave free drainage; encourage the patient to move the joint. One usually finds that the skin and soft parts of the wound wish to close long before the joint may be completely drained. Secondary gathering of infection is a sequence.

If the patient is seen after the disease has been in progress and pus has spread into the tissues about the hip, the difficulties of diagnosis in the operation may be increased. Do not be satisfied with the finding of pus in the upper thigh or in the hip region. Find where it originates. If possible, osteomyelitis of the diaphysis or ilium should be ruled out before opening the hip joint. The hip joint is opened and drained as in the early cases. On account of the burrowing of pus, it may be necessary to make a counter opening posteriorly along the neck of the femur and behind the greater trochanter. By this means through and through drainage or irrigation may be instituted. No attempt is made to remove any bone until sequestration is definitely shown by the roentgenogram.

If pus has invaded the peri-articular structures, the whole leg should be immobilized in a body plaster encasement, the leg in full extension and 30° abduction. A window cut in the plaster facilitates dressing.

If the epiphysis has become separated, with leg shortening and abduction, immobilize it in plaster-of-paris body encasement after drainage of the hip joint followed by traction, inversion of the foot and maximal abduction.

When the hip joint has been dislocated recently in the pathologic process, drain, put the leg in extension traction and abduction after a reduction has been made.

Hip joints long dislocated, with an adventitious acetabulum or extensive pressure sores cannot often be reduced. They must be drained, all sequestrated bone and granulations removed, the ilium freshened and the leg put in slight inversion with about 30° abduction to be held by plaster-of-paris for a varying period of time. If ankylosis follows, a supporting metal brace is used until uncontrolled weight bearing is possible.

When the pathologic dislocation of the hip is old with ankylosis and the leg is shortened and adducted, a subtrochanteric osteotomy and leg abduction are indicated. It is needless to add that sunlight and hygienic measures are required to restore the patient to health.

In fulminating cases early recognition is the important factor. Early drainage may save metastases or an overpowering septicemia. It prevents bone destruction and may obviate pathologic dislocation. Blood transfusion is indicated.

DISCUSSION (*Abstract*)

Dr. Willis C. Campbell, Memphis, Tenn.—Dr. Speed has called our attention to the fact that primary pyogenic infection of the hip does not occur in children: the process begins as an acute epiphysitis. The prognosis depends entirely upon early diagnosis, as early operative interference is imperative if extensive destruction is to be avoided. Acute epiphysitis in children is analogous to acute infectious osteomyelitis, and if drainage is established within the first twenty-four hours, the process becomes arrested. Dislocation of the joint is very common from distention of the capsule and may occur comparatively early within the first week, although dislocation sometimes occurs as a late complication and is even possible during the subacute stage.

When dislocation does occur, reduction should be made at once and at the same time drainage is established. Excellent results are possible even after complete dislocation of the joint. When the dislocation is not reduced, the end results closely resemble a congenital dislocation of the hip, except that a definite crepitation can be elicited. We have reduced by the open method about six cases of this type years after the acute infection. The possibility of securing absolutely perfect function depends largely upon the degree of osseous destruction which has occurred, but in some of the cases very excellent results have been obtained.

Dr. Speed has demonstrated the very interesting fact

that coxa vara or epiphyseal separation can be caused by an acute infection, which shows that the same pathological condition in the bone may arise from various etiologic factors.

Dr. Isidore Cohn, New Orleans, La.—In cases which come to the surgeon late education is necessary, and it is not particularly important to start primarily with the people. We ourselves must be educated first to diagnose these cases early before the appearance of general sepsis, pyemia, cystitis, and the other terrible manifestations which Dr. Speed has shown us do accompany the disease.

We cannot depend on the x-ray for an early diagnosis. It will be of diagnostic value only when there is a difference in density in bone, and when that occurs there is death of bone.

He has shown us conclusively the importance of early operation before x-ray manifestations. I believe that is one of the things to be gained.

I should like to ask Dr. Speed whether he thinks instead of using drainage material, it would be better to follow the plan of Wilms, depending upon the synovial fluid as an antiseptic agent, instead of upon irrigation. Wilms has shown us that the best antiseptic is that which the Great Creative Genius has given every one of us, synovial fluid, and that particular fluid comes out in great quantities in response to injury or infection. It is remarkable to watch a joint close as soon as the infection has disappeared. You need not worry about the capsule's closing. If you will give it just half a chance it will close before you want it to. If it is possible to treat these cases, as other joints, without the introduction of foreign material such as rubber drainage tubes, we may secure better results and less ankylosis.

Dr. Guy A. Caldwell, Shreveport, La.—Frequently these cases are not sent into the hospital until they are almost moribund, or until destruction of the joint is well advanced. I have seen six cases; one was fifteen years old, and five were under eighteen months; the infection was two to five days advanced when seen. Each case was treated by the following routine: as soon as the general examination and blood count were completed, the patient was sent to the emergency operating room. The joint was aspirated under anesthesia and pus obtained. Drainage was established by an anterior crucial incision and a tube was sutured in the muscles leading down to the capsule. Traction was used for fixation.

One patient died within forty-eight hours and autopsy showed numerous metastatic abscesses in the muscles, joints, liver and kidneys. Five healed in four to eight weeks and recovered an almost complete range of motion in the joint in four to six months. One has been followed with periodical x-rays for three years since recovery and shows very little change in the head of the femur. These cases can and should be recognized as certainly and as early as those of acute osteomyelitis, and they should receive the same immediate attention.

Dr. Albert Key, St. Louis, Mo.—The condition of acute epiphysitis in the hip is acute osteomyelitis in the upper end of the femur.

Dr. Speed has said that acute arthritis is very rare, and that is probably true. There will always be a controversy as to whether this infection begins in the bone or joint.

In nine out of ten acute septic conditions in which we suspect osteomyelitis in the neck of the femur, there will be an infection in the hip joint. Instead of opening the easy place, we should go after the hip joint first and look for our disease there. If that idea could be gotten across to the general surgeon, we would see fewer of these cases.

THE CURE OF STRABISMUS*

By OSCAR WILKINSON, A.M., M.D., D.Sc.,
Washington, D. C.

I have used the word "cure" in the title of this paper purposely. Dorland's medical dictionary gives as a definition of cure: "The successful treatment of a disease or wound." I am well aware that the word "cure" is to be used with caution in the present day medical literature. Its use is not justified until the diseased organ has been relieved of its abnormal condition and restored to its normal function.

With this comprehensive view of cure in our minds, we should ask ourselves what constitutes a cure in a case of strabismus.

To cure a patient with strabismus we must accomplish the following (1) restore vision to 6/6, or at least 6/9, in each eye; (2) create a desire for binocular vision; and (3) finally establish binocular vision. This latter is absolutely essential because binocular vision is the one and only thing that will ever keep a pair of eyes straight.

It must be understood that the following remarks do not apply to strabismus due to real abnormality but to that large class of cases of functional strabismus which are seen daily by most of us. Where there are corneal scars, congenital cataracts, old central choroidal patches, or other fundus lesions, it will be impossible to effect a cure in the full meaning of the word. That great neglected mass of cases of functional strabismus which come to us after the eyes have been crossed from eight to ten years, or more, can never be cured. From one state alone seven hundred and fifty boys were refused entrance into the army out of the first draft on account of strabismus. That surely could be called a cock-eyed state.

I was very much surprised, on looking over one hundred consecutive cases of strabismus in my private practice, to find that only 24 per cent were really cured, that is, only in that per cent was approximately normal binocular vision restored; and of this 24 per cent practically all were under six years of age when first seen.

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

The remedy is simple: treat them very early and very definitely. How are we to do this when only 22 per cent of the cases are seen early, and the majority of those which are seen early are treated in a haphazard way? It becomes evident that our first task is educational. We must first educate the public, then the general practitioner, then the oculist.

Education of the Public.—Every parent, or guardian, should be taught that squint in a young child can be cured if the treatment is begun immediately after the crossing of the eyes is first noticed. These individuals should be educated away from that false idea that squint is a trivial matter which the child will outgrow, or in case that fails, that it may be relieved by the snipping of a little muscle. No conception of strabismus could be more erroneous or more baneful. It must be understood that these children should be in the hands of the oculist long before they are of school age. Any cross-eyed child in school is a neglected child. The public must be taught that strabismus is a serious functional disorder which, if neglected, becomes increasingly difficult even approximately to cure. The public should know that this terrible deformity makes the child timid and shy and creates an inferiority complex. Neglectful waiting will not only cost the child an eye but will make it necessary for him to undergo an operation later, which by no means restores his vision. At best, if it be done too late, it is only a cosmetic procedure, and not a real cure. At this stage we relinquish our noble aim to cure our patient and become beauty doctors. It is quite possible to disseminate this knowledge in most communities through the parent-teachers association and through the publicity committee of the medical society, both in the daily papers and over the radio.

It is important that those in charge of the young child before school age should know that the operative procedure for the cure of strabismus is not the mere "snipping of a muscle" but a most exacting and delicate surgical procedure, which demands our best judgment and skill, and frequently more than one operation is required to secure the desired result. These facts are not properly placed before the public at the present time. Another point which should be emphasized is this: the earlier the case is placed in the hands of a competent oculist, the easier and more simple is the cure. It is claimed by those who have made the most careful study of the subject that if a squinting child is neglected for three or four years he cannot be cured at all; but, if the treatment is begun at the earliest possible moment, perfect cures are the usual result. Anyone can see that if a cure can be effected by means of glasses, the use of atropin and exercise, the result will be a more natural and desirable one than can possibly be obtained by means of operative intervention.

Education of the General Practitioner.—Our greatest educational need is within our own profession. The pediatrician and general practitioner should know all these facts about strabismus. The parent observes his child's eyes crossing and forthwith takes him to his family physician. If the family physician is well informed on the subject, he will impress upon the parent the need of immediate action by a competent oculist, and warn him of the serious trouble which will result from neglect. If he is not well informed, he may counsel delay, claiming that the child is likely to outgrow the defect, or that nothing can be done except by operating when he is twelve or fourteen years old and, incidentally, after all hope of a real cure is lost. Such ill advice is not worthy of our present day practitioner, in whom the public places every trust. I speak thus fully of the duty of the family physician because the oculist will seldom see these cases early unless they are referred to him by the family physician, and they cannot be cured unless they are seen early. I have, time and again, seen cases referred to opticians for glasses by the family physicians. This is all wrong, but it is largely our fault. We have not sufficiently impressed upon them the importance of the early scientific care of these patients.

Education of the Oculist.—Our third educational program comes even closer home; it is within our own ranks. It has been my experience that the majority of ophthalmologists are not thoroughly alive to this part of their work. They seem to shrink from the responsibility of these cases, beyond fitting them with glasses, and then refitting them over an extended period, while the squint remains unrelieved or grows worse. It has been observed that those cases of squint which are not improved in six months (indeed, one month is sufficient to show whether the glasses are going to correct the squint) should be operated upon without further delay, so that what vision remains in the squinting eye may be conserved and perhaps increased afterwards by using glasses and exercise. If an ophthalmologist does not wish to undertake the proper treatment of squint cases, he should send them to a confrere who will. It is shameful to allow

these poor, afflicted mortals to be carried on from year to year by the hope that the wearing of glasses will cure the squint.

The Cure of Strabismus.—Here we are, back again to our text. I have stated above that the cure of strabismus is simple: treat the cases early and very definitely. How shall we do this? We shall discuss this under the following heads: non-operative treatment; operative treatment; and post-operative treatment.

The first thing in the treatment of a case of strabismus is to make a thorough examination. This should be done methodically; otherwise many essential facts will be overlooked. I recommend that a methodical examination be carried out in each case, and in order that this may be done I have devised a strabismus chart and recommend it to anyone who wishes to make a thorough study and keep an efficient record of his strabismus cases.

At a glance, this chart would seem superfluous. However, I feel that every step is necessary if we are to know all we should know before proceeding radically with the treatment of a case of squint.

The history taking is important. It gives us much valuable information. It often gives us an insight into the nature of the squint and aids in directing the treatment. If the deviation is from birth, the possibility of its being a congenital squint (associated with more or less amblyopia due to defect in one or both eyes, such as scars on the cornea, congenital cataract, or some central fundus lesion) should be considered. If the squint occurs between the second and third years and is monocular, amblyopia is apt to occur early and become marked if means are not used for its relief.

It is exceedingly important to note the type of squint present as well as its duration. This aids materially in our prognosis as to time of treatment, nature of treatment, and the ultimate results to be expected. In periodic, intermittent cases of short duration, one would expect an almost immediate relief of the condition after a careful refraction and adjustment of the proper glasses and orthoptic training as indicated in the chapter on "Non-operative Treatment of Strabismus" in a monograph on "Strabismus" which has just been published.*

If it is of an alternating type, has been present since two years of age, or earlier, and is of marked degree, glasses will probably not relieve it, and an operation will, in all probability, be a necessity. If it is constant and of but short duration, with good acuity of vision and of low degree, glasses, atropin and exercises will probably bring about a cure. If it is constant, of long duration, high degree, and marked amblyopia, glasses and atropin will probably not cure, and an early operation may be advisable. Thus we see the immediate and remote importance of determining at first the character of the squint present.

There are a few essentials which must never be overlooked. These are: (1) degree of fixation of the deviating eye; (2) movements of each eye; (3) visual acuity; (4) degree of binocular vision, or fusion; (5) degree of deviation; (6) refraction; and (7) ophthalmoscopic findings.

Until the above information is secured, no man is in a position even to begin the treatment of strabismus or to suggest a prognosis.

I shall devote a very few remarks to each of these subjects.

Degree of Fixation of the Deviating Eye.—The patient is seated in a dark room with a light behind him. He is told to look at the mirror of the retinoscope, as the light is reflected into his eye. The position of the image on the cornea is noted. The fixing eye is then covered and the light reflected into the deviating eye. If it has central fixation, it will straighten out and the image will occupy the same relative position as that of the good eye. If there is eccentric fixation, the eye will fix the light with the spurious macula, and there will still be a certain amount of deviation. If it has no fixation, the eye will wander. This indicates marked amblyopia, and calls for a guarded prognosis.

Movements of Each Eye.—These can be tested by covering one eye at a time and causing the patient to look in the six diagnostic directions by means of a flashlight in a dark room. Adversion until the cornea is within 1-2 mm. of the caruncle and abversion of the cornea to the external canthus are considered normal. Any marked want of deviation in the other directions can be readily detected. This test enables us to observe an overaction or underaction of any set of muscles and separates the functional squints from the paralytic. Stevens' tropometer is very useful in determining the muscular status, and should be used when possible.

Visual Acuity.—The acuity of vision is one of our chief prognostic guides. The greater the acuity, the more hopeful the case; the greater the defect, the greater is our difficulty. The usual method of determining acuity of vision is

*C. V. Mosby Company, St. Louis, Mo.

by means of the Snellen test types for distance for subjects who can read the letters. Vision can be tested in very young children by means of Worth's ivory balls. These balls, of different sizes, are placed on the floor, one at a time, and the child is told to pick them up. A fair idea of the child's visual acuity can be gained by his ability to go directly to a ball of certain size placed at a certain distance from him. By accurately determining the visual acuity at the first visit, and subsequently, the progress of the case can be at all times determined.

Degree of Binocular Vision, or Fusion.—Binocular vision is the one thing that will keep a pair of eyes straight. This is best tested by means of some form of stereoscope. The amblyoscope of Worth, as modified by Black, is one of the best. The Holmes stereoscope, which is a modification of the Brewster instrument, is in common use in America. Wells' phoro-optometer stereoscope is a most useful instrument. Worth's classification of fusion into first grade (simultaneous macular perception), second grade (true fusion with some amplitude), and third grade (sense of perspective) is convenient for study. The use of the "dot test" and colored glasses, a red glass before one eye and a green glass before the other, is a rapid and efficient method of determining the second grade of fusion. Hering's drop test for the sense of perspective is one of the oldest and best. The determination of the degree of fusion in each case of strabismus is of highest prognostic value. A squint of recent occurrence in a patient with good visual acuity in each eye, and with fairly good fusion can certainly be cured.

Degree of Deviation.—This is so important that I have devoted a whole chapter to it in the monograph mentioned above. The deviation should be accurately measured at the first examination and subsequently until a very definite measurement has been secured, and this should be repeated once or twice a month until the case is cured. Our records of the progress, or want of progress, in these cases is our chief guide as to when to operate or upon whom to operate. The method of determining the degree of squint I shall discuss later.

Refraction.—The refraction is determined by retinoscopy after the use of a 0.5 per cent solution of atropin for a week or ten days. In very young children it is advisable to use an ointment or a weaker solution. It often requires much tact and patience to do an exact retinoscopy in very young children, but it is so important that it should be obtained, even if it requires several sittings. The importance of an accurate and painstaking retinoscopy cannot be overestimated, as this is the sole method of determining the refraction of these young subjects, and our end results depend upon our accuracy. In case of defective fixation, the retinoscopy is best made by causing the fixing eye to look at an object held in such a position as to bring the deviating eye straight and then proceed with the retinoscopy on that eye. In young subjects especially, it is advisable to determine the weaker refractive meridian of the eye with a sphere and to use a cylinder to correct the opposite meridian, thus arriving at the proper axis for the cylindrical correction. After the retinoscopy has been carefully checked and vision carefully and accurately recorded, with correction where possible, glasses should be prescribed and worn before the eyes recover from the atropin.* It is my custom to order the full amount of correction less .50 D., as recommended by Worth, with full correction of the astigmatisms. In older subjects than five years, the eyes sometimes turn in with the ordinary distance lenses, on prolonged application for near. An overcorrection of from 1 to 2 D. for these children to use in studying, or the use of bifocals, will be of much aid in some cases.

Ophthalmoscopic Findings.—After the retinoscopy, while the eyes are under the influence of the atropin, a careful study of the fundus should be made. It is particularly desirable to know the state of the macular region and the condition of the optic nerve.

Treatment of Strabismus.—Our first duty in the treatment of squint is to have a thorough physical examination made of the child and, if necessary, to call in the aid of a neurologist. Few, if any, of these young subjects are up to par either physically or neurologically. We have, in the past, treated squint entirely too much as a local condition. It is very frequently the result of some physical insult, and the best results are obtained when we approach the case with this broader view.

Non-Operative Treatment.—Our object here is first to restore the vision in the deviated eye to normal; second, to create a desire for binocular vision; third, to secure binocular vision. Our first step is to determine the visual acuity and correct the error of refraction, as indicated above. We should order practically full correction, to be placed on the child at once before the atropin wears off, and to be worn constantly.

The atropin is discontinued and the patient is told to return in ten days. The condition of the eyes at this time is carefully noted. The visual acuity of each eye is carefully recorded and the degree of deviation measured. If one eye squints, and the vision is still poor, say as low as 6/60, the good eye is occluded for ten days, at the expiration of which the child reports for further examination. Usually in a functional squint, without gross pathology, the visual acuity will be markedly improved. This occlusion, or padding of the straight eye, is kept up for several series of ten days until the use of atropin in the good eye will cause the use of the previously deviating one. When this occurs, there is no further need for padding. If, after six weeks of complete occlusion of the good eye, the visual acuity of the crossed eye has not improved, further effort along that line is not apt to succeed. Where the vision improves, and it usually does so rapidly in patients who have had crossed eyes only a relatively short time, this line of treatment should be continued until the vision in the previously deviating eye is 6/9, or better.

As soon as the acuity of vision is brought up, and even while it is being brought up, some effort should be made toward training the fusion power. There are several apparatuses on the market for this purpose, which have already been mentioned. Worth states that fusion training is scarcely worth the trouble in children above eight years of age. The best results are obtained in those cases where a definite exercise can be given for several weeks at a time, two or three sittings a week being given. This must be done by the oculist himself, or some one specially trained, and even then the work must be supervised from time to time to see that it is being carried out properly.

Operative Treatment.—In case of failure to secure binocular vision and straight eyes within six months, what is our next step? Such an eventuality will occur in proportion to the duration of the strabismus; hence the great importance of seeing these cases early. It now becomes our duty to place the child's eyes so nearly straight that it will be possible for him to secure binocular vision. This is possible in nearly every case. It is done: (1) by very accurate and definite measurement of the degree of squint; (2) by very accurate and definite operative work; and (3) by training of the fusion faculty after operating.

There are a few things that must be accomplished before we are justified in operating upon the very young child. It is absolutely essential that the non-operative treatment has been properly tried and found wanting. The full correction of the error of refraction must have been used constantly for six months. The visual acuity must have been developed by occlusion and atropin in the straight eye. The grade of fusion must be determined. And last, but by no means least, the degree of deviation under different conditions both at 60 cm. and 6 meters must be definitely established.

No definite method of operating can ever be established unless we have a definite means of measuring the amount of squint before we operate. I have used for years a modification of the Holzer-Priestly Smith tape for determining the degree of deviation at both 60 cm. and 6 meters. I have found this method efficient and rapid, and it can be used on the youngest child.

The degree of strabismus is measured every twenty days until about five different sets of measurements are taken, and a check-up on these will give us very valuable information. In fact, it gives information which can be obtained in no other manner. It tells us whether the strabismus is decreasing or increasing or remaining stationary. We must not operate upon the very young child without this information. It does more than this: it is our guide as to when to operate and upon whom to operate and how to operate. In spite of this fact, many cases of squint are operated upon without ever having their degree of strabismus measured. How can we ever establish an accurate operative procedure with indifferent pre-operative records? We are not surprised that many dispute the fact that a definite amount of shortening of a muscle will correct a given amount of deviation. We have been entirely too lax in our pre-operative measurements.

Method of Operation.—I take it for granted that no one wishes to do a tenotomy on a very young child, except possibly a tenotomy of the externus for an external deviation. I also assume that operations which would require scleral sutures will be avoided as far as possible. That leaves some form of resection or tucking to be done on the external rectus in internal squints, and on the superior, or inferior rectus, for the vertical deviations. I have no objections to any form of shortening so long as it is safe and can be accurately measured. Accuracy in our pre-operative examinations and accuracy on the operating table are absolutely necessary in the

establishment of definite squint surgery, such as would justify us in operating upon the very young.

In 1922, before this Section of the American Medical Association, I presented definite operative procedures, with measurements and braces. These I have modified but slightly, and have now used in more than five hundred cases and with increasing confidence. I have described these methods in detail elsewhere.

In all my operative cases the degree of deviation is first definitely established both for near and far, and a slip of paper, on which is recorded the deviation and the amount of shortening to be done, is sent to the operating room with the child. The child is etherized, the brace sutures are first placed, and then the pull of the internal rectus is taken with scales and recorded. The external muscle is exposed and shortened according to the instructions on the slip. This is done by means of a specially designed caliper, and the amount of actual shortening is measured after the suture is tied. This is also recorded. After the sutures are tied, I put in the brace, which relieves the sutures of all tension and permits the eye to heal in the position in which it was left at the end of the operation.

Now, if we know the exact amount of deviation before we operate, and the exact amount of shortening done at the operation, and then can measure the deviation, if any, afterwards, there is no reason why we cannot finally arrive at something exact in squint surgery.

Post-Operative Treatment.—Within two or three weeks after the operation, fusion training is instituted. The child is brought to the office and the exercises are given as laid down by C. Worth in his excellent monograph on "Squint." The exercises as practiced by Wells, of Boston, with his stereo-optometer are especially useful at this stage. For children who are able to read, the bar reading device is to be recommended. In other words, we teach the child to use both eyes together and endeavor to break him of his old habit of suppressing the image of one eye. After all, accurate surgical work will enable the children to secure naturally binocular vision. Instead of a few minutes' exercise in binocular vision, they soon have binocular vision the entire day, and then nothing can cause the eyes to deviate short of a paralysis of an ocular muscle.

These fortunate results are not always attained by one operation, and when special fusion training fails after operation, due to the fact that the images are still too far apart, other operative procedures are indicated and should be done after three or four months' delay.

My plea to you, gentlemen, is to cure your cases of strabismus. To do this, you will have to educate both the public and the physician away from the delusion that strabismus is a simple thing that the child will outgrow; and you must educate them away from the false idea that glasses will eventually cure them. Glasses will do in a few months all that they will ever do. You must teach the great importance of very early treatment, and you, yourselves, must assume the responsibility more frankly and must not neglect these cases, but operate early when other methods have failed.

DISCUSSION (*Abstract*)

Dr. Eldred B. Cayce, Nashville, Tenn.—I assisted Dr. Wilkinson with two of these operations several years ago. One case I followed up, and cosmetically the results were ideal. I attempted with the Worth amblyoscope to get binocular vision, which was not secured. I have never been able in any case that I have operated upon, or seen operated, to secure binocular vision. If the cure of cases of strabismus means binocular vision, I have never seen a cure. Dr. Verhoeff a year ago told me that he had never seen a case of binocular central vision following any type of operative work on the muscle for strabismus.

I have done Dr. Wilkinson's operation many times, and I think today it is the safest operation upon a young child. However, I have discarded the resection of the external rectus and substituted the Brigg's tucker. The question always comes up of how much to tuck of the external rectus. I tuck all that I can secure without too much traction. I think in the adult to attempt binocular single vision is very trying for the patient and disappointing to the surgeon. I have now under my care a man, 36 years of age, who was operated upon when he was about twelve. He had an external deviation, and a tenotomy was done on the external rectus of the right eye. A year later a complete tenotomy of the external rectus was done. Every effort with glasses has been made to give him binocular single vision. He has an antipathy for binocular single vision, and this diagnosis was confirmed by a consultation with Dr. Savage. He has been made comfortable by receiving a two degree prism base to relieve him of the effort he was making to have single vision.

Dr. E. W. Carpenter, Greenville, S. C.—We are all in accord with the speaker as to the doing of a refraction as a preliminary, but refraction should also be done after the operation reaction has subsided. Many a child refuses to wear its glasses because he cannot see as well with the glasses we give him as he did before he came to us. I have seen as much as 5 diopters of astigmatism caused by the operative effect. If we check up the refraction a few weeks afterwards, when the operative trauma has subsided, we secure much more satisfaction in the visual results than by giving every adult or infant a pair of glasses before the operation. Do the refraction after the operation if you can and watch for corneal changes for several weeks.

Dr. Wilkinson (closing).—Dr. Cayce said he had not seen a case cured, that is, restored to binocular vision. That is really the point that caused me to read the paper. If we can operate early enough, we will get binocular vision. If we operate late, we will not. Worth says we do not get binocular vision after a child is eight, unless he has had binocular vision before; and I think that is right.

As to refraction after operation, that is a good point. I have never seen as much as 5 diopters of astigmatism following operation.

ACRODYNIA*

By FRANK THOMAS MITCHELL, M.D.,
Memphis, Tenn.

This condition has been variously described as epidemic erythema, acrodynia, Kornstaube, Kriebelkeit, morbus ceralis, podalgia, ignipedites, pink disease, erythro-edema, and by other names, by many authors in Europe, Australia, Canada, and the western, central and southern parts of the United States.

As early as the Sixteenth Century there appeared a disease among soldiers quartered in Paris, which resembled acrodynia, but now is thought to have been probably arsenic poisoning. However, in 1828 to 1830 there appeared in France a disease in epidemic form which was described in detail by a number of the most able men of the times, and which is now considered as the same condition herein described. At the same time cases were reported from the West Indies, and in 1888 from Jamaica. It has been seen in India, Turkey, Persia, and Algiers. Since the first French epidemic, there have been numerous outbreaks in Central Europe.

The first series of cases to be reported in this country was by Bilderbach[1] of Portland, Oregon, in 1920. Soon thereafter, Dr. William Weston[2] of South Carolina wrote a paper which identified this disease as the same disease which had been described in Europe and elsewhere. Following this, articles by Byfield,[3] Lamb,[4] Rodda,[5] Zahorsky,[6] Brown, McCourtney and McLachlan,[7] Helmick,[8] Craig,[9] Thusfield,[10] and many others have given us the reports of over one hundred cases for study and comparison.

ETIOLOGY

The cause of acrodynia is not known. However, many hypotheses have been advanced from various sources, the most promising of which are: first, the early writers thought it was due to a food deficiency, and indeed it was confused with pellagra both abroad and in this country. Later, the idea was advanced that it was a late complication of influenza or a specific infection of the nervous system. More lately, it has been thought to depend on some endocrine disturbance. In 1920, Byfield reported cases cured by tonsillectomy, and contended that it was due to focal infection in the upper respiratory tract. Brown believed it due to some unknown intoxication, and this year Helmick advances the theory that it is due to protein sensitization. Sex, climate, hygienic conditions, age and heredity have no influence.

SYMPTOMS

The symptoms vary somewhat in certain localities and in different or the same epidemics. However, the resemblance is so definite that a well-marked case may be easily recognized from any of the descriptions given.

The two outstanding symptoms are restlessness and the rash, which are always present. The restlessness and loss of sleep are due to the painful extremities and to the itching and burning rash which involves the palms and soles and dorsal surfaces of hands and feet. Occasionally the rash is seen on the nose, ears and cheeks. An erythema may occur and recur from time to time and cover the entire body except the back of the neck. With fading of the rash, desquamation occurs. At times there is an edema which does not pit on pressure. The rash at times appears as macules, papules, or pustules, and deep abscesses or gangrene of the skin may develop. Deep ulcers on fingers and toes are at times seen. Sweating profusely is common, and the hands and feet are continuously cold and clammy, almost cadaverous.

The hair is dry, the nails discolored, and frequently the nails fall off. The teeth frequently fall out, even without any associated lesion of the gums.

Loss of appetite is common. A recurrent diarrhea is frequent; prolapse of the rectum has been reported. Pyelitis is sometimes seen. Irritability, restlessness, and insomnia are always seen. Paresthesias of the fingers and toes and convulsions are at times present. Rhinitis, pharyngitis, an enlargement of the cervical glands, frequent attacks of bronchitis and occasionally pneumonia are the respiratory tract findings. The eyes are very sensitive to light, and the child will burrow his head to protect them.

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*Clinic, Clinic Session, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

Muscular weakness with atrophy is always present, which prohibits walking, and contractures occasionally are noticed. Secondary anemia is sometimes seen.

An examination of the blood shows a total white increase, with a relatively high polymorphonuclear count. The Wassermann and tuberculin tests are negative. Blood cultures and spinal fluid are negative, and the stools show no parasites. Metabolic studies show a negative nitrogen balance.

PATHOLOGY

The prognosis is good, and those cases coming to autopsy have died of some intercurrent condition. Various autopsies have led to the finding of a peripheral neuritis, a gliosis of the central canal of the spinal cord, an edema of the sciatic nerve, swelling of the myelin sheath, an edema of the perineuron and epineuron without cellular infiltration. Some have described destruction of the medullary sheath of the calf muscles. The skin shows hyperkeratosis and edema of the corium.

TREATMENT

The treatment consists in the use of sedatives internally, together with proper diet and tonic treatment generally, and local treatment for the relief of the itching and burning skin.

Byfield thinks tonsillectomy to be quickly curative, and Sweet,[11] and later Craig report relief and improvement following the use of the quartz lamp. Vipond[12] made a vaccine from an enlarged gland, and reported good results after its use.

CASE REPORT

J. B. B., referred by Dr. W. M. Bigham, June 18, 1927, was eleven and one-half months old.

The family history revealed the following: the father was American born, and healthy; the mother, who was born in England, had lived in the United States seven years. Her past history had no bearing on this child. She was healthy and has been well lately, and during the time she was carrying the child. The family history was negative for cancer, rheumatism, tuberculosis, syphilis, and insanity. This child had never lived with one suffering with tuberculosis as far as was known.

The patient was from the mother's second pregnancy. The first terminated at the expected time. Pregnancy was normal; delivery was accomplished by high forceps extraction, and the child, though apparently normal, died a few hours after birth, presumably from a head injury. No autopsy was done.

The pregnancy with this child was normal. Delivery at full term was normal, and the baby at birth was of good size, though not weighed, and no deformity or injury was noted. He was breast-fed one month, when because of poor gain in weight he was given supplemental feedings of condensed milk. At two months the breast milk gave out, and until he was six months old, he was fed condensed milk alone. At six months he was put on cow's milk with Mellin's food, soups, cereals and orange juice, which diet he was on when first seen by me.

At three months he had a sore throat and mouth, which prevented him from taking the bottle for two weeks. From the fifth month colds had been frequent. Several attacks of otitis media had occurred, and often the ears had discharged, but never for an extremely long time.

When he was eight months old, the mother noticed for the first time that light hurt his eyes.

He was brought to me for an eruption, which had been recurrent and which had resisted treatment for several weeks. Besides this, he was constipated, strained on urination, had no appetite and was extremely restless, crying almost continuously day and night. He had slight fever occasionally, had not vomited, had had no convulsions, and the weight had been practically stationary for several weeks. The urine was scant and high colored, and irritated the skin to a marked degree. A diagnosis of pyelitis had been recently made.

On physical examination, the child was found to be fairly well nourished, weighing nineteen pounds and five ounces. He was extremely irritable and cried continuously if he was handled or if let alone. If he was set up, he would bend over and bury his face between his knees to protect his eyes from the light. Mentally he was alert, and his intelligence seemed to be up to if not above the average. He drooled continuously and seemed most unhappy.

The first thing to attract the attention was the skin, which was covered with an erythematous rash everywhere except on the back of the neck. Around the mouth, on the chin, abdomen, buttocks, thighs and scrotum there had developed a pustular eruption which was breaking down and forming ulcers, with sharp borders not unlike those produced by the yeast fungus.

The skin was bathed everywhere in sweat, and felt cold to the touch, being edematous on the fingers and toes and on their dorsal surfaces broken open so that numerous cracks and ulcers had developed.

The scalp was negative, the conjunctiva slightly reddened, the mucous membrane of the mouth inflamed, but no ulcers were seen. The gums were healthy. The ears were negative except for recent scarring of the drums. There was a slight enlargement of all the cervical glands.

The heart and lungs were negative. The spleen and liver were slightly enlarged. The bones showed those changes seen in mild rickets, and the abdomen was distended moderately. Because of his irritability, the reflexes could not be determined. The muscles were generally soft and flabby. The genitals were negative except for a peculiar thickening and folding over of the skin and mucous membrane at the rectum. In some of these folds superficial fissures could be seen.

The blood showed a total red count of 4,900,000, hemoglobin percentage 70, total white cells 19,700, polymorphonuclears 44, and small lymphocytes 56 per cent. The Pirquet and the Wassermann reactions were negative. The urine has been negative except for an occasional trace of albumin, or the occasional findings of a few pus cells.

The pus from the skin lesions cultured out a streptococcus and the *Staphylococcus aureus*. No tubercle bacilli were found, and no yeast fungi could be seen.

X-ray of the paranasal sinuses was negative; the left mastoid was somewhat cloudy, and the chest showed a moderate enlargement of the peri-bronchial lymph glands, and several perihilar calcifications.

The treatment has been varied and symptomatic. The pustular lesions were treated with an ointment of tar and ammoniated mercury, the larger ones with wet dressing of Ochsner's solution.

The itching and burning seemed to respond to a solution of ichthyol in calamine lotion better than to anything else tried. The larger pustular lesions had to be opened; at first, as many as five or six at a sitting. They finally cleared up under the ultra-violet lamp and the use of an autogenous vaccine. One cervical and one submaxillary gland have had to be drained.

The diet has been gradually increased with his age, but his present weight is only twenty pounds and one ounce. The internal medication has been bromides for the restlessness, early in the treatment arsenic, iron, cod liver oil, and the injection twice of manganese butyrate intramuscularly. Once or twice the diet had to be reduced and medication given for an intercurrent diarrhea. Several times he has been treated for a bronchitis, which has always subsided without complications. Three months ago the lower central incisors were noticed to be loose, and one has since fallen out. His general condition has never warranted the removal of the tonsils and adenoids until recently. The baby has gradually improved under the treatment outlined, and with the operation contemplated, we believe a speedy and complete recovery will supervene.

REFERENCES

1. Bilderbach, J. B.: Northern Med. 19:263, Oct., 1920.
2. Weston, W.: Abstracts Ped., Vol. 2, W. B. Saunders Co. Arch. Ped. 37:513, Sept., 1920.
3. Byfield, A. H.: Amer. Jour. Dis. of Child. 20:347, Nov., 1920.
4. Lamb, quoted by Weston, 2.
5. Rodda: Amer. Jour. Dis. of Child. August, 1925.
6. Zahorsky: J. A. M. A., 79:1975, Dec. 9, 1922.
7. Brown, McCourtney and McLachlan: Arch. Ped. 38:609, Oct., 1921.
8. Helmick, A. G.: Arch. Ped. 44:405, July, 1927.
9. Craig, R. A.: Arch. Ped. 44:581, Sept., 1927.
10. Thusfield, J. H., and Pittman, D. H.: Brit. Jour. Dis. Child. 19:27, March, 1922.
11. Sweet, G. B.: Arch. Ped. August, 1925.
12. Vipond, A. E.: Arch. Ped. 39:611, Sept., 1922.

VOLUNTARY PSYCHOSES AND PSYCHONEUROSES*

By E. Bates Block, M.D.,†
Atlanta, Ga.

I have chosen the term "voluntary psychosis" for the reason that the titular abstraction more nearly represents a class of mental disturbances than the other terms often used, and separates into a clinical entity a certain type of affections in which the chief element involved is an effort to forget some conflict between the primitive instincts and the herd instinct.

Patients often ask if they are going to lose their minds. The reply is, "If you want to." "How absurd!" they say. "No one wants to lose his mind." They are then told that no one calls it by this name, but he says to himself: "I want to forget." Now if you forget anything you have lost that much of your mind. If it is a trivial thing no one thinks anything of it. But suppose it forms an important chapter in one's life and extends over a considerable period of time, then suppose that this entire constellation of ideas, with all the associated ideas, is forgotten, that is, forced out of the conscious mind into the subconscious mind, then the patient has lost so much mind that it becomes conspicuous to the family and friends or even to the patient himself.

Of the primitive instincts, namely, nutrition, self-preservation and reproduction, the last named comes most often in conflict with the herd instinct, or the laws of civilization, or the sense of right and wrong. Given a keen conscience or religion, a great effort is made to forget it and thrust it out of the mind, often with a success that means insanity for the patient. So long as some transgression of the laws of civilization is not forgotten we may have nervousness, anxiety, neurosis, etc., but not insanity, until the matter is finally forgotten, and then a neurosis passes into a psychosis.

Let us take first the case of a patient with an anxiety neurosis.

She presented a history of having had a nervous breakdown while nursing her husband, and it was attributed to overwork and anxiety. Several years before this she had a nervous breakdown under identical circumstances. Ten years before she had a nervous breakdown while nursing her son-in-law in his final illness. More careful investigation showed that she had for six months, fourteen years ago, kept up an intimacy with her son-in-law, and it was the repetition in her mind of nursing her husband, who had been on the same terms with her, that caused the nervous breakdown. She had an anxiety neurosis and was struggling hard to convert this into a psychosis by forgetting a previous experience which represented a conflict between her primitive instinct of reproduction and her sense of right and wrong.

Take again the case of an unmarried woman who thought people were peeping in the window at her. She would draw the curtains tight and draw down the shades, and the next morning look for foot tracks under the window. She covered the keyhole in the door to the parlor. She thought that people were looking at her and talking about her and accusing her of being immoral. She thought the preacher was preaching at her, and that his remarks were meant for her, "although he carefully avoided looking at her when he

*Read in Section on Neurology and Psychiatry, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†Professor of Neurology and Psychiatry, Emory University, Atlanta, Georgia.

made the remarks, so that she could not openly accuse him of being personal," but now and then he glanced at her "to see if she were taking note of what he was saying." These seemed like, and were at the time, pure delusions, although fifteen years prior to this time she was very much in love with a man, and the drawing of curtains was a necessary precaution during his visits. In this case the delusions were merely a late recurrence of thoughts and ideas which had a definite foundation in fact fifteen years before this. The ideas had recurred, although the facts upon which they were based had long since been forgotten. The mind always attempts to forget things that are painful to remember.

In another case the patient was an orphan and lived with relatives. Quite early, as a young lady, she went to work, but soon accepted a position in another town where her salary was smaller, and also she had to pay board, which reduced her earnings to almost nothing. Here she roomed with another girl to save expense. She then married a man over twice her age. After marriage she continued to work harder than ever, did also part of his work, all of her housework, gardening and writing, and her breakdown was attributed to overwork. Her story, however, clearly reveals defense reactions and an effort to forget. A careful study of her case was made extremely difficult, and was delayed by the complete blankness of her mind which amounted at first to amentia. Building a probable explanation of her difficulties upon the facts related above, revealed the fact that the relative with whom she lived was a moral pervert and petted and caressed her in a way that conflicted strongly with her conscience. Leaving home and accepting a less remunerative job became, therefore, quite comprehensible as a defense reaction. However, she "jumped into the scabbard to escape the sword," for her roommate proved to be a homosexual pervert, and again her defense reaction was shown in marrying a man over twice her age. Then her struggle to forget became the all absorbing aim of her life, and she succeeded only too well.

It is a great mistake to regard either hallucinations or delusions as being groundless. Their meaning is not always obvious at first, but on careful study they are usually found to have a very definite meaning.

Let us consider the case of Mrs. Z. At first she was quite unapproachable owing to the fact that she would not speak or answer questions. From her actions, however, she evidently heard voices, and at home was sometimes heard to say "Shut up," or show evident anger when the voices were talking. It was only by very laborious work that she was induced to tell what the voices said. At first she would only admit that they accused her of all sorts of things, of being immoral and of being a bad woman. Later she was induced to write down what they said. They often said, "I'll knock you down with X's schmeckel." This is a Russian word for penis, and the idea of being knocked down was an obvious association of ideas with "falling," which to a woman has (as in the Bible) a more emotional moral sense than physical meaning. At times the voices made nonsense rhymes with schmeckel, as heckel, peckel, neckel, kleckel, teckel. Later she said that she would not talk before for the reason that she had the idea that half of her body belonged to her husband (who had been dead for four years) and the other half to X. Whenever she spoke a pain passed from her mouth up to the left side of her head and was very acute. This was the side of her that belonged to her husband. Her breakdown had been attributed to the fact that she had recently become engaged and her family thought that worry over her approaching marriage was responsible. On more careful study it was found that her first child was born three months before her marriage (abortion) and her breakdown was three months before her present intended marriage. The explanation of the two halves of her body belonging to different men lay in the fact that previous to her engagement to her husband she was in love with X, and had put her hand on his penis and feared "falling," which later appeared in the form of voices saying: "I'll knock you down with X's schmeckel."

In stressing the importance of voluntary psychoses and psychoneuroses there is no desire to minimize the importance of the influence of nutrition, as in pellagra, alcoholism, or of the organic brain diseases, such as encephalitis, in producing phychoses. These are well known and have their proper places.

It was obviously an effort to forget that led to insanity, and the term voluntary psychosis seems descriptive and valuable in separating this class of cases, which at times assume more or less the type of psychosis, at others of paranoia, or even dementia precox. It is a simple matter when the mind is lost from psychogenic reasons to hunt it up, find it, and bring it back again. The approach, however, is quite different in dietetic and in organic cases, psychotherapy being applicable really only to the cases of psychogenic origin.

The effort to lose one's mind is often apparent in the conduct of the patient. Sublimation is often attempted through turning to religion with the hope that it will give sufficient moral fortitude to resist overpowering primitive instincts. This is not hypocrisy, as it seems to many people, but an honest effort to lead better lives, although there are undoubtedly some who use religion as a cloak for their lack of moral fortitude.

Some people are brought up in a very religious environment, and there is no change in their religious habits, but this very training creates in them a keener conscience, and mere thoughts of evil may prey upon their minds, whereas actual infringement of social and religious laws may have no effect upon other people who have little or no conscience.

Thus a girl, age 18 years, had frequent sudden crying spells which prevented her mingling in society, going with boys, and living the usual life of girls of her age, on account of "evil thoughts" which were a source of great embarrassment to her. After obtaining, with great difficulty and insistence, her confession, and after explaining to her that such thoughts and desires were

natural to everyone, and that all young people had them, and that she was no worse than other girls, that it was merely nature, a normal physiological function, she made a complete recovery. She did not become less religious or less good, but merely took a saner view of the subject.

More serious was the case of a woman, age 44, who a few years before consultation neglected her home, spent all of her time in church work, helping her pastor, teaching Sunday school, going to church and prayer meetings, praying with the sick and working with missions. At the time she was under treatment the Bible was never out of her reach. Even when she went to the bathroom she took it with her, and spent all of her time while in the hospital either in prayer or in reading the Bible. This was clearly an effort at sublimation and a defense reaction. The truth of the matter was that since her marriage she had been intimate with eleven different men, one of whom she had never seen before nor since, and she did not even know his name. Unfortunately her primitive instincts were stronger than her civilization, and she was making a great effort to obtain enough moral fortitude through religion to conquer her human nature. Along with this effort was also an effort to forget her sins, which succeeded so well that she developed a psychosis.

In another case a man, raised in a very religious family, developed a psychosis. The most striking feature of his case was his constant reading of the Bible, his praying and begging others to pray with him and for him. His excessive religious zeal suggested an effort at atonement, and when questioned specifically he admitted violation of most of the laws of God and man, for which he felt he could never be forgiven, that God would not listen to his prayers, and would not answer his prayers. Here, as usual, more goodness, or less conscience, would have prevented his psychosis, but recovery followed the bringing back into his consciousness of the evils he had done and his unhappy state of mind was soothed by a new philosophy and a determination to follow the laws of civilization in the future.

In these cases it was the actual forgetting, the losing of their minds, because they wished to forget, that caused the psychoses. If they had not succeeded in forgetting there would have been psychoneuroses instead, but their sanity would have been retained. The tendency of the unenlightened physician to tell patients to "forget it" or to make light of their fears of losing their minds, must be deplored. Instead, they should be encouraged to remember, to think what they want to forget, to study their painful ideas, to talk about them to their physician, and to find out just why they should want "to lose their minds," for if they succeed in forgetting then they have lost that much of their minds, although the remembering may carry with it nervousness, worry or an anxiety neurosis, which is, however, much better than a psychosis. From these they can emerge more easily by adaptation, adjustment, and philosophy, and again find peace of mind.

While it is our duty to uphold religion, it is also our duty to bring about an adjustment and reconciliation of the herd instinct with the primitive instincts, and not expect, nor allow patients to expect, to be less than human in feelings and desires, but to teach them the necessity of thinking of the good of society as a whole and to retain their peace of mind by never doing violence to their conscience or the conscience of others. Unfortunately, religion, as it is sometimes taught, causes more insanity than syphilis, and it is our duty to make it more a matter of intelligence and less of emotion. A preacher should be careful never "to hope to merit Heaven by making Earth a Hell." Their intention is, of course, good and praiseworthy, but such vague expressions as "unpardonable sin," or "eternal torment," instill into people fears which undermine their reason. So often in response to the question, "When did it begin?" they reply, "I was attending a revival," or "It was during a protracted meeting." Would it not be better to teach people that it is best to be good in order to retain their self-respect, to have a clear conscience, to avoid social degradation, to avoid disease, rather than teach them that they will lose their immortal soul and will be punished through all eternity? Let them realize their duty towards civilization and the part they should play in it.

DISCUSSION (*Abstract*)

Dr. H. S. Sullivan, Towson, Md.—The view which Dr. Block brings to us is a particularly useful one. I am reminded of a case of a student nurse in a hospital who gave her patient by mistake a solution of bichloride of mercury from which he died. Her reaction was to forget it all, not only to forget the incident of the bichloride of mercury, but also all her training as a nurse. In order to forget the incident she had to drop out the last four years of her life. I do not think we often see in a psychosis a massive forgetting like that. Only people of hysterical tendencies can accomplish such a drop of experience as that. This effort to avoid conflicts leads to the struggle which makes up the psychosis. This woman was comparatively comfortable once she made this massive amnesia. In their struggle there are so many things connected with this thing they are trying to get rid of that there is a physical as well as a serious mental disorder resulting.

Dr. Block's last points were even of greater interest to me than the idea of forgetting. This field of psychiatry is very simple. The patient comes to the clinic; you look at him and tell him to forget about his worry. I think it is perfectly obvious to anyone who has dealt with psychogenic maladies that it is not a process of forgetting but one of developing an insight into why a condition is happening. First, the

patient must accept the fact that he is ill; second, there is some reason for his being ill; third, there is some reason for that reason for his being ill.

The first consideration is what we should teach people of social influences, and particularly of the organized church. The ideals on which this hyperreligious attitude can be engrafted must be considered. We should teach religion in the home. The first thing is to readjust the attitude of parents towards right and wrong. Most parents still live in the Mesozoic age. They know that there is something right and wrong. Those of us who have attempted to find it have not succeeded. The parents should be taught to change their beliefs, particularly on mental hygiene. We should impress on them that children must adjust themselves to the conventions of society, that they must deal with reality as it is and keep their eye on what they are doing, what people expect of them, rather than upon rewards in the next life. I have no quarrel with religion, but I do believe that many times religion is provocative of mental disorder. I have found many cases where the regulations and religious teaching of individuals failed to provide any balance for the individual in this generation. We have no one formula that will work for all. I should strongly urge all those who are in governing positions—parents, teachers, and even those in religion—to strive for evidences of reality and for the demands that society makes. We should place our dependents in a position to depend on themselves rather than on such things as eternal punishment, hell, the refusal of God to save us.

Dr. G. B. Lake, Chicago, Ill.—Many patients come to us for whom we can do very little. A large percentage of these could have been helped if we had seen them sooner.

A few hundred years ago people were content to have predigested ideas given to them. We realize that no great number of people has yet begun really to think, but many are demanding the right to "re-arrange their own prejudices" for themselves.

Religion, as a guide to personal conduct, may have worked in ancient times, as Dr. Sullivan said, but it no longer does so. Its place must be taken by some coordinated and rational philosophy. People are going to have disastrous times in trying to direct their lives down a pathway they cannot see. If they do not know where they are going it makes no difference where they are.

It seems to me that one thing which is very important for us to do is to work out, for ourselves, some sort of coordinated philosophy which fits in rationally with the discoveries that are being made in the various branches of science; and, until we have something of that sort worked out ourselves, we are not in a position to give help and the advice they seriously need to many of our patients.

Dr. Block (closing).—There is nothing unreasonable about the ten commandments. They are just; but it is not sufficient to tell a child: "This is a right thing or a wrong thing." You should give a reason. It makes a better child out of him to explain the reason rather than to give commands.

TREATMENT OF TUBERCULOSIS OF BLADDER AND EPIDIDYMIS*

By E. L. KEYES, M.D.,
New York, N. Y.

The remarks I have to make concerning the treatment of tuberculosis are not meant to cover the subject wholly but rather to urge you to persist in carrying on treatment of these conditions beyond the point where we have in the past been obliged to admit defeat.

The treatment of tuberculosis of the bladder begins, of course, with the recognition that it is always secondary to tuberculosis elsewhere. This source is usually in the kidney, but, when the male bladder is infected, the prostate is tuberculous as well, whether it be primarily or secondarily involved.

The second requirement of treatment for tuberculosis of the bladder is nephrectomy (if the kidney is tuberculous) in the hope that the bladder symptoms will then abate. It is impossible to set an exact term upon how long one should wait. Marked spontaneous remission in bladder irritability may occur one or two years after nephrectomy. The best practice is doubtless to intervene when the patient's symptoms become insupportable in spite of the usual local treatment.

One must distinguish tuberculous cystitis, a general inflammation of approximately the whole bladder, from tuberculous ulceration, the lesions of which are much more localized and destructive. Two types of lesion often co-exist, under which condition we treat the case as one of tuberculous cystitis.

For tuberculous cystitis the best treatment is Rovsing's irrigation under anesthesia (sacral will often do) with small quantities of 2 per cent phenol until the fluid returns fairly clear, to be repeated once or twice a month. The reaction lasts a week or ten days. The more the patient remains in bed the better.

Heed this warning. The patient with bladder tuberculosis must get along without morphin so long as there is hope of recovery. He is the ideal supplicant for drug addiction.

For tuberculous ulcers the treatment must be more intense and local, in the form of cauterization, electrical or chemical, as described for the treatment of simple ulcers. Indeed the

*Read in Section on Urology, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

treatment of the tuberculous bladder ulcer should be conducted as though it were quite as curable as the simple ulcer, for such is the actual case. In each case my personal fancy favors chemical cauterization through the straight tube used as a cofferdam for the larger ulcers; light electro-stimulation, preferably with the monopolar high frequency (Oudin) current, for the smaller ones. And beware of the prostate.

Should the most meticulous local treatment fail, blood chemistry and 'phthalein tests will doubtless suggest involvement of the remaining kidney and the physician must admit failure in one of three ways: by frankly confessing it and bidding the patient fight it out with little more than moral support from the physician, by administering morphin, or by seeking help from surgery.

The usual surgical recourse is cutaneous ureterostomy. (Pyelostomy is not a good operation unless the pelvis is more dilated than I have seen it and cystostomy often does not relieve the symptoms.) The operation is performed under spinal anesthesia. It is essential that the patient be followed at regular intervals for the dilatation or surgical reopening of the neo-meatus. Intestinal ureterostomy has many objections, such as the danger of the operation itself, the absence of one kidney, which intensifies the gravity of the attacks of acute renal infection that follow and the possibility of direct inoculation of tuberculosis upon the intestinal mucosa. In contrast, the prospect offered by cutaneous ureterostomy is delightful. None of my three patients has had any immediate post-operative complications, excepting the one in whose ureters I left indwelling catheters that occasioned disastrous sloughing of the mucosa. The torturing strangury ceases as by magic. Once a day or so at first and later once a week or so a single painful spasm suffices to eject a drop of pus, and after a year or more these spasms cease altogether. Mild tuberculosis of the remaining kidney is no contra-indication to ureterostomy. One such has blessed me every day of his survival, which will surely be longer with free drainage than it could have been with the back pressure of strangury.

There are two other compromises possible. Both threaten dangers more than the relief promised quite justifies except under special conditions. These are antispasmodic decompression and suprapubic cauterization and prostatotomy.

Antispasmodic decompression of the bladder* is decompression by indwelling catheter with the fluid level at the height of the belly wall, so that while the retention is negligible the bladder is splinted in quasi-emptiness and grinds out no terminal spasm. For men it is usually prohibited by the sensitiveness of the tuberculous prostate. Hinman has helped women with it under the guise of continuous irrigation. The patient must cooperate intelligently, the nurse must be specially trained.

That suprapubic cauterization of tuberculosis is feasible I learned by accident. I diagnosed a large ulcer in a furiously irritable bladder as cancer. I opened the bladder, found what was grossly no tumor, took a specimen, implanted ten 1.5 mc. gold tubes of radium emanation and closed the bladder without drainage into it. A stormy convalescence followed, with pyonephrosis, pathological report of tuberculosis and nephrectomy. Six months later the patient was fat and happy, his bladder clean but for a small superficial ulcer near the inert ureter orifice.

Since then I have twice deliberately opened the bladder whose symptoms I could not control through the cystoscope and cauterized ulcers chemically, bitten out a good sized piece of the rigid bladder neck (reported tuberculous) and closed tight around a drainage tube which was removed as soon as bleeding ceased and replaced by a 20 F. suprapubic tube, and this in turn removed in a week. The fistula healed in a few weeks and the wound in three months under quartz light treatment. Thereafter both patients have gained weight and been in much greater comfort than before operation. They are not so well as the first case but content to take no drugs and visit no physician.

And all else failing, ureterostomy remains as a last resort.

TUBERCULOSIS OF THE EPIDIDYMIS

Here again diagnosis is of the utmost importance. When the spontaneous infection of an epididymis suggests tuberculosis, one must beware of accepting this suggestion until at least three months have elapsed to prove that the infection will not get well spontaneously, for unless there are confirmatory lesions elsewhere in the body, or acid-fast bacilli can be expressed from the prostate or vesicles or obtained from the urine, one cannot be sure that any lesion of the epididymis accompanied by any lesion of the internal genitals is actually tuberculous until the

*Journal of Urology, 16:3, Sept. 1926.

lapse of three months without spontaneous cure proves it so. The only exception is the hyperacute mixed tuberculous infection which so promptly ends in abscess that drainage of this gives the opportunity for biopsy which in turn proves the presence of tuberculosis.

During the three months' probationary period, the lesion may be attacked by quartz light.

With the diagnosis completed, the question arises whether the epididymis should be operated upon at all. If the lesion is mild, it is relatively unimportant as compared to other active lesions in the body. But when it is the dominant lesion, or when it has so recently arisen that one feels no confidence in its spontaneous control, the minor operation of epididymectomy seems preferable to abstention. Even when the lesion has become stabilized in the form of caseating masses of one or both epididymes, operation may enormously improve the patient's general condition, for there is considerable absorption from these cheesy foci.

In short, after a predominantly non-operative practice for ten years (the results of which were published in 1907), I have for the last twenty years advocated and practiced epididymectomy for tuberculosis in all cases excepting those in which the dominant lesion was elsewhere in the body and the epididymal lesion insignificant.

At the time of operation it has been my custom to perform vasotomy upon the opposite side if the patient is sterile. Marion states that he has seen tuberculosis of the epididymis occur after vasotomy, but prefers to remove both epididymes simultaneously for unilateral tuberculosis, whether the patient is sterile or not.

Inasmuch as I have omitted the prophylactic vasotomy in only three cases, having found spermatozoa in the semen, and two of these developed tuberculosis of the opposite epididymis within eighteen months, I am prepared to urge upon these patients the consideration of prophylactic epididymectomy at the time the tuberculous epididymis is removed.

But there are cases that cannot be treated by epididymectomy. Occasionally the onset of the tuberculosis is so hyperacute as to resemble torsion of the cord and to culminate in a suppuration that involves both testicle and epididymis. These require immediate orchidectomy. Others neglect the condition until the mixed infection completely immerses the testicle in a mass of phlegmon with more or less suppuration and ultimately fistulization. When one can thus not palpate the testicle, it is certainly impracticable to attempt to save it by epididymectomy. Yet these patients are precisely the ones who must appeal for this operation. They are often patients who have already lost one testicle on the guarantee that the disease would not return and the shocking condition in which they first present themselves thereafter is an expression of their fear that the second testicle must be lost.

This situation may be met by splitting the tunica vaginalis, delivering the testicle, excising the epididymis as far as practicable and widely opening all abscesses and mopping them out with pure carbolic acid. The edges of the skin are then sutured to the gutter thus formed, no attention is paid to the tunica vaginalis, and the wound is expected to heal in the course of a year or more.

I have operated thus upon four cases and, though one may recognize the possibility of exciting acute miliary tuberculosis by such an operation, I have had the good fortune to escape this. Each of the patients has, however, failed to heal until a secondary operation was performed a year or more after the first one to excise fistulae and the small nodules to which they led at the upper or lower pole of the epididymis.

During the convalescence the quartz light may be used. Good results have also been reported from very light doses of x-ray.

The testicle that remains after this operation appears grossly normal, though such a good result would seem impossible to hope for at the time the patient is first seen.

DISCUSSION (*Abstract*)

Dr. George R. Livermore, Memphis, Tenn.—If we see these bladder cases early and do a nephrectomy, we can frequently cure them. Dr. Keyes spoke of carbolic acid solution for injection into the bladder. Gomenol has seemed to me at times to make these patients more comfortable.

I was glad to hear Dr. Keyes say that we could open a tuberculous bladder, because we have always been taught that this resulted in a fistula that never healed. If he can prevent these fistulae by sewing the bladder up it is worth while for all of us to attempt it. My experience has been that it is better to divert the urine by doing a pyelotomy and draining the urine out through the back to relieve some of the distressing bladder symptoms.

Dr. Keyes mentioned the questions discussed at the International Congress. I saw a comment by Dr. Walker, of London, in which he argued that instead of removing the seminal vesicle, it was better to do an epididymectomy; then if there were a recurrence, to go back and take out the seminal vesicle. It seems to me that if we are going to have to do it eventually, we

had better do it in the beginning, as Dr. Keyes advises, rather than have to do two operations.

Dr. E. G. Ballenger, Atlanta, Ga.—Owing to the wonderful climate of Atlanta, we have a surprisingly low percentage of patients with tuberculosis of the kidney, bladder and epididymitis.

There is one type of tuberculosis which I desire to mention, however, namely, tuberculous epididymitis with an associated hydrocele. For fifteen years, when such conditions have been encountered, the hydrocele fluid has been aspirated and injected immediately into the gluteal muscles. The amount injected has varied from 25 to 50 c.c. No disturbing reaction is produced by it and in no instance has an abscess developed at the site of the injection; nor did chills or fever arise subsequently.

We first employed this treatment in a man with tuberculosis of both kidneys, the bladder, epididymis, larynx and lungs. There was a constant bladder tenesmus; the urine looked like bloody, diluted milk. The internal sphincter was destroyed and the lower part of the vesical neck; the verumontanum appeared to be in the bladder cavity. The patient's condition seemed hopeless. We could only suggest rest, sunshine and good food in the country. He was greatly discouraged, and asked us, at least, to tap the hydrocele. Much serum therapy was being used at that time, and it occurred to us that perhaps nature had stored some protective substance in this hydrocele fluid, resulting from, or at least associated with, the well developed tuberculous epididymitis. We gave him 20 c.c. intramuscularly. In three days the urine was clear and the frequency less marked. Other doses were given, and the amount gradually increased every three or four days for six weeks, at which time no more hydrocele fluid could be obtained. He made steady improvement in all of his symptoms, the frequency decreased, the bladder capacity increased, the epididymis gradually decreased to about twice the normal size, and two scrotal fistulous tracts healed. Apparently a miracle had happened. Within a few months he was able to work, supervising his lumber business. Tubercle bacilli could be found no longer, and he lived for five years until he was killed by accident in a lumber camp.

During the past fifteen years we have seen six other patients with what appeared to be tuberculous epididymitis, with an associated hydrocele. All were treated like the patient described. Where a reasonable amount of fluid was available, strikingly good results were obtained. The amount given was gradually increased until the average dose was 40 or 50 c.c. once a week or at longer intervals when the fluid reformed slowly.

While the results were strikingly good in some instances, no patient was in such a critical condition as the first one we treated. One of the patients was a boy, aged 17, who had a bilateral tuberculous epididymitis and a hydrocele on both sides. Dr. Boyd will recall having seen this patient. The injections of the hydrocele fluid were followed by a reduction in the size of the tuberculous epididymes until, at present, they are only slightly larger and slightly harder than normal. The hydrocele still recurs slowly, and every three to five months is aspirated and injected. It is now nearly three years since the treatment was started and there has been no tendency to relapse.

Other patients with non-tuberculous epididymitis were also treated by this method with beneficial results, but usually only when the hydrocele fluid showed considerable pus.

The diagnosis of the tuberculous epididymitis was based upon the same chemical data that we employ for the differential diagnosis of such lesions when not associated with hydroceles, which diagnoses have been confirmed by pathological studies after excision.

Dr. Montague L. Boyd, Atlanta, Ga.—In the case referred to by Dr. Ballenger there was no question that the condition was tuberculosis. The patient had a family history of tuberculosis and the lesions felt like tuberculous changes. I did not believe very much in Dr. Ballenger's method of treating this condition until I saw the results upon this patient, and now I am rather enthusiastic about it, although I have had no further opportunities to try it out.

Dr. Hugh H. Young, Baltimore, Md.—I am not surprised that Dr. Keyes reports that the urologists assembled in Brussels did not mention my operation for the radical removal of tuberculosis of the seminal tract. I have had the same experience with my radical operation for cancer of the prostate, with which we have secured 70 per cent apparent cures in patients followed five years after leaving the hospital, and yet the general adoption of which has been prevented by the impression prevalent that it was too difficult. Some urologists also refrain from doing perineal prostatectomy because of its supposed difficulties. Additional experience confirms our previous statistics and papers on tuberculosis of the seminal tract, and may be briefly stated as follows: tuberculosis of the epididymis is rarely primary, but generally follows or is associated with tuberculosis of the seminal vesicles. Simple epididymectomy is usually followed by tuberculosis of the second epididymis, as Dr. Keyes himself first emphasized. Cases treated by simple epididymectomy will often return later with serious complications characterized by extensive involvement of the prostate, seminal vesicles, bladder and kidney. By radical removal of the epididymis, vasa, ampullae, vesicles and resection of the lateral lobes of the prostate, excellent radically curative results have been obtained even in extensive cases.

Cases of tuberculous epididymitis with slight involvement of one seminal vesicle may be successfully treated by injection of carbolic acid through the vas into the seminal vesicle after epididymectomy, but in cases of pronounced involvement and generally in bilateral epididymis involvement, the radical operation should be done. We have even succeeded in seven cases in which we had to remove a kidney in addition to epididymis, vasa, vesicles and lateral lobes of the prostate.

One glance at the anatomy of the seminal vesicles and ampullae should be sufficient to convince anyone that proper drainage could never occur through the minute ejaculatory ducts. If we are agreed that a tuberculous kidney (with a better drainage canal) should always be radically operated upon, why should not the same reason hold for tuberculosis of the vesicles?

Dr. Burr Ferguson, Birmingham, Ala.—I have been struck by the similarity of the treatment of hydrocele in Birmingham to that used in Atlanta. Since Dr. Ballenger says that when the fluid from the hydrocele has been exhausted there is nothing more to use until the sac refills, I have a little suggestion to make for a very simple means to replace the body fluid. If Dr. Ballenger will do blood counts on his patients eighteen to twenty-four hours after the injection he will find a very profound stimulation of the white blood cells. It is a protein reaction. It has been our practice in the Free Dispensary Clinic to use other means of securing

this stimulation. With something over three thousand visits a month we see a fair number of cases of hydrocele and epididymitis. All of these cases are treated through the stimulation of the white blood cells, and the agents we use mostly are mercurochrome, proteins and arsphenamin. All of these are powerful stimulants for the production of while blood cells, and we see the same clinical improvement from the use of any one of the drugs twice a week. There will be a corresponding decrease in the white blood cells as the tolerance is established, if any one of them is used constantly. We vary the agent, this keeping the white blood cells nervous, as it were, and they come out in great numbers. For seven years we have used this method empirically, for the last four and a half years, knowing the effect of the injection into the blood of the mercurial and arsenical preparations. Anything from a blow in the eye to the injection of the drugs most used in intravenous therapy will cause an increase in the number of white blood cells. With this experience I have decided that if anyone recovers from any infection, from smallpox to gonorrhea, it is due to the activity of the white blood cells.

Dr. Joseph F. McCarthy, New York, N. Y.—Dr. Keyes has taken a very trite subject for his thesis, but has embellished it with much of his grace of thought and speech.

I wish to add my experience in two cases of vesical ulcer following nephrectomy, one, a young lady on whom a nephrectomy had been performed for renal tuberculosis, but whose life was a burden because of frequency of urination every fifteen to twenty minutes day and night. Examination showed discrete ulcers. We tried cystoscopic diathermy without result, then proposed an open operation. This I did, and not only fulgurated these ulcers but carbonized them. Her improvement was spectacular, and justified continuing this practice in similar cases. The bladder incision closed without difficulty.

Another case was that of a man with the same clinical picture, ulceration with phosphatic deposition on the ulcers, persistant pain and disabling frequency. The same satisfactory result was accomplished with the same treatment.

I therefore unhesitatingly recommend this procedure in cases presenting a similar clinical picture.

Dr. William F. Braasch, Rochester, Minn.—I know of nothing more difficult to treat than the tuberculous bladder. In 70 per cent of patients operated upon for renal tuberculosis the bladder will get well spontaneously, but the length of time after operation when they get well varies greatly. One patient may recover in two or three months and the next in two or three years. It is difficult to interpret the exact value of any specific treatment given before six months at least have elapsed, because we must remember that they may have recovered anyway.

I wish to corroborate Dr. Keyes' experience that conservative treatment of the bladder is best, and this is particularly true of the bladder with the panmural type of infection.

On cystoscopy the post-operative bladder will vary greatly in appearance. I am always glad to see the discrete, superficial ulcer rather than the panmural or diffuse type. For diffuse infections of the bladder it has been our experience that the so-called Rovsing treatment, which Dr. Keyes was first to use in America, is best. The way we employ it is to lavage the bladder daily for a week or two with a 0.5 to 1 per cent solution of phenol. Then, after thorough cocainization of the bladder, we inject 15 c. c. of a 6 per cent solution of phenol and leave it in the bladder one or two minutes. The bladder is then lavaged with boric acid solution. We do this two or three times at intervals of a week or so, and the results are frequently very favorable. Where the ulcers are discrete, fulguration is applicable and very valuable, and is preferable to topical applications.

Building up the system is of great importance. I have never seen any result from tuberculin. The use of intravesical light has not given us definite results, although it would seem that its use might be further developed.

It has been claimed that the remaining portion of the ureter may be the cause of persistent tuberculosis in the bladder. In four or five cases where this seemed possible, ureterectomy of the stump was made, but the patients were not helped and I question whether the ureter could act as a focus.

Regarding the removal of the tuberculous prostate, epididymis and seminal vesicles, the effect can be told only over a course of years by one who does it routinely as Dr. Young does. We have followed our patients operated upon for renal tuberculosis for many years after operation, and have found no difference in the ultimate outcome between male and female. Since 90 per cent of the males have infection in the prostate, seminal vesicles and vas, and we seldom if ever remove these organs, I do not see the advantage of removing them. If the epididymis is infected, it should, of course, be removed, because of suppuration, but I question whether surgery is necessary for involvement of the adjacent organs.

Dr. Keyes (closing).—Dr. Livermore reminded me that I had not gone deeply into the milder treatment of tuberculosis of the bladder. Gomenol is good. All sorts of injections have been used, but I was speaking of those that had not done well. He spoke of pyelotomy. I do not care for it. I have done ureterostomy on three tuberculous individuals and on one case of contracted bladder. One of the tuberculous patients had bilateral tuberculosis and did very badly, in part because I put ureteral catheters into the ureters when I transplanted them. They sloughed. I have seen the same thing happen in the hands of others. This complication you will try to avoid by so placing the ureter that it makes a normal curve without kinking or tension. My most brilliant result was in a man who had a ureter an inch in diameter. One patient's bladder became so bad that he became a dope fiend, and he also came into the hospital with acute alcoholism. I transplanted his ureter into the belly wall. His kidney, I thought, was not tuberculous. He had much pain before I got him back a year later and made him a nice big orifice for the ureter. Then he gave up morphine and became well and happy.

In my experience the case that has done best is the one with a dilated ureter.

I have had no experience with Dr. Ballenger's injection method. With Dr. Young's cutting operation I have had practically the same experience as Dr. Braasch.

INDICATIONS FOR RADICAL MASTOID OPERATION: CASE REPORTS*

By P. M. FARRINGTON, M.D.,
Memphis, Tenn.

The indications for radical and simple mastoid operation are entirely different. The simple mastoid operation is performed for the relief of acute and active infection involving the cell structures of the mastoid bone and the membranes lining the antrum and middle ear. It is done in the presence of acute infection, to establish drainage, for the protection of drum and ossicles, and to preserve hearing.

The radical mastoid operation should be looked upon rather as a protection against further extension of bone necrosis and danger of intracranial involvement. The radical operation is not concerned with the preservation of hearing, but with the safe removal of all necrotic bone structure. This requires in every case the removal of ossicles and remnants of drum membrane; also the removal of the posterior bony canal wall and the destruction of all cell structure and converting the whole into one large, clean bone cavity with drainage through the membranous canal. There is difference of opinion regarding the use of a skin graft to line this cavity. It has been my practice to use grafts for the reason that the wound heals more rapidly. There are fewer adhesions and the hearing is more fully conserved.

The radical operation should never be performed if there is a chance of cleaning up all existing pathological conditions by treatment. Unfortunately many of these cases have been woefully neglected and are beyond the treatment stage when they are first seen. Because of the absence of marked symptoms, patients are often in grave danger without being aware of it. Every chronic ear with intermittent discharge, harboring necrotic bone, is a dangerous ear, dangerous as regards life itself.

The rule is that these cases are seen first by the family physician and his advice is sought and acted upon. It behooves him, therefore, to consider carefully the past history of such an ear and to visualize the disease processes at work within the bone.

Many cases of intermittent discharge are observed in elderly people whose history dates from childhood and who have escaped dangerous symptoms for many years only to be stricken later in life.

Some of these cases show areas of exposed sinus or dura covered with granulations, a constant menace to life.

The consensus of opinion is that 50 per cent of the brain abscesses encountered are associated with chronic mastoiditis.

Regarding the indications for radical operation, we wish to know, first, whether or not we are dealing with a chronic mastoiditis. We must ascertain this by obtaining the best possible history of the case; whether the discharge is constant or intermittent, odorless or foul-smelling as in bone necrosis.

We should be informed regarding the amount of pain at the time of our examination and during past years; also whether the patient has a history of sudden deafness or vertigo.

Careful inspection with reflected light should be made to determine the presence of polypi, necrotic ossicles and to determine the amount of drum membrane destroyed. X-rays are always of value.

After examination, and having diagnosed chronic mastoiditis, we should advise operation:

(1) If there is discharge with bone odor, accompanied by pain within the ear or radiating over the side of the head, with or without the presence of polypi.

(2) If there is bony occlusion of the canal with discharge, as above.

(3) If there are symptoms of meningitis, abscess of the brain or sinus thrombosis.

(4) If there is fistula of the postero-superior wall of the external auditory canal.

(5) If there are frequent attacks of dizziness which can be associated with the ear discharge.

(6) If there is sudden arrest of discharge with increased pain and tenderness.

After this brief outline I desire to report three cases in point:

Case 1.—Mr. R. D., age 31, a theatrical manager, was actively at work, in good general health, but somewhat below normal in weight.

He had had a simple mastoid operation on the left

*Clinic, Clinic Session, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

side when a child and periodical discharge since that time.

For the preceding six weeks he had been dizzy at times and the ear felt full. Dizziness was severe when he made pressure over the upper boundary of the old mastoid scar.

Examination showed the canal to be well open. The drum was destroyed. There were no granulations. There was slight moisture in the deeper canal. The eustachian tube was well open.

We confirmed his statement regarding dizziness on pressure over the scar.

My pre-operative diagnosis was that he had a perforation of the cortex and also perforation of the external semi-circular canal, with a cholesteatomatous mass filling the space between. Pressure over this area was transmitted to the exposed membranous canal, thus producing dizziness.

At operation the above was found to be correct. Granulations and necrosed bone were removed over the external canal and the membranous canal was exposed and found intact. Several days later a skin graft was applied. Although the patient developed erysipelas nine days following this procedure, the graft was not destroyed and he made an uneventful recovery with a dry ear.

This patient gained forty pounds in three months' time and has since remained in perfect health.

Case 2.—J. T. K. was a student, 18 years of age.

When he was four years old his right ear discharged for fifteen months. A few years later it discharged for one month. His general health was good.

For the preceding few days he had had severe pain and swelling over the right mastoid and zygomatic process. The temperature was 101° F. The canal was moist and partly closed. Inspection by reflected light could not be made satisfactorily. Radical operation was performed. The antrum was high and forward and filled with cholesteatoma. The ossicles were embedded in a cicatricial mass. The drum was mostly destroyed, the wound left open. After acute symptoms subsided, a skin graft was applied and the wound was closed.

The result was a dry ear and relief of all symptoms.

Case 3.—R. T. was seen in June, 1918. His age was 17 years; his weight normal.

At eight years of age he had had abscess of both ears. Lately the right ear had been draining and painful.

There was marked tenderness over the right mastoid. The temperature was 100.6° F. The canal was completely filled with polypi.

At operation the entire membranous canal was found destroyed. In addition to the usual operative procedure and skin graft, we placed an additional cylindrical graft to form a new canal. After five weeks the wound was healed and dry. Five years later this ear was dry and healthy and he perceived whispers at seven feet.

CONCLUSIONS

The operative care of chronic mastoiditis is a successful and safe procedure in the vast majority of cases. It conserves life and promotes health.

THE RESULTS OF TREATMENT OF SYPHILIS IN PREGNANT WOMEN: INFLUENCE EXERTED BY SUCH TREATMENT IN THE HISTOLOGIC APPEARANCE OF THE PLACENTA*†

By J. R. McCord, M.D.,
Atlanta, Ga.

Sixty per cent of the negro babies born in Atlanta are delivered in our clinic; and we have very definitely proved that syphilis is the cause of death in the case of 57 per cent of the babies who are stillborn or die before leaving the hospital. Hence, this is an economic problem as well as a problem of scientific interest.

I want to bring to your attention, in just as graphic a manner as I can, the effect of prenatal treatment on the babies born of syphilitic mothers. We have, by constant hammering, reduced the incidence of four-plus labor Wassermanns from 30 per cent (or even higher) to 23 per cent in 1926, and to 13 per cent in 1927. These results were obtained in spite of the fact that the number of patients is constantly increasing.

I am going to divide my talk into three parts; first, I will show you a table, based on 100 cases, illustrating the effect of prenatal treatment on the babies born of syphilitic mothers; second, I am going to show you something which I do not think has been shown you before: how anti-syphilitic treatment allows the baby to be born alive; third, I will show you slides that illustrate the wide distribution of spirochetes in the baby.

The 100 women in this series had from one to 26 treatments.

X-Ray of the Baby.—There was not a single positive x-ray of a baby whose mother had more than eight treatments. There were only four premature babies born of mothers who had more than eight treatments. Not a single mother of a premature stillborn baby had more than three treatments. The placenta was positive more often in the cases having one treatment. The positive placentas decreased as the number of treatments increased. I could have given you many more of these cases, but took only 100 to make the contrast as great as possible.

*Clinic, Clinic Session, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†From the Department of Obstetrics, Emory University School of Medicine.

TREATMENTS		1	2	3	4	5	6	7	8	9	10	11	12	14	15	17	18	19	26
FULL TERM	Alive	7	6	7	9	8	6	6	12	7	.....	1	3	1	1	1	1	1	1
	Dead	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PREMATURE	Alive	2	....	2	2	2	.....	1	2	.....	1	1	1	1	.....	.....	.....	.....	.....
	Dead	2	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
X-RAY BABY	Negative	2	1	7	8	4	3	4	7	3	.....	2	1	2	1	1	1	1	1
	Positive	2	1	2	.....	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SEROLOGIC EVIDENCES OF BABY	Negative	5	4	6	9	6	6	6	13	7	1	2	3	2	1	1	1	1	1
	Positive	4	2	4	1	4	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PLACENTAS	Negative	.....	2	6	3	1	1	1	5	4	.....	1	1	.....	1	.....	.....	.....	.....
	Positive	11	7	5	3	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Inf.	.....	.....	.....	5	8	5	6	8	3	1	1	3	2	.....	1	1	1	1
MATERNAL WASSERMANN	Inf.	.....	1	3	6	7	2	5	12	5	1	2	2	1	.....	1	1	1	1
	Not Inf.	11	8	8	5	3	4	2	2	2	.....	.....	2	1	1	.....	.....	.....	.....

Some few years ago Dr. E. D. Plass, obstetrician at the Henry Ford Hospital, said he believed that anti-syphilitic treatment of pregnant women had some definite influence on the histologic appearance of the placenta. He did not tell me what it was, and since then I have been trying to find out what he meant. Now, I believe I know.

STILLBIRTHS

Full-term stillbirths..... 1 per cent
Premature stillbirths..... 6 per cent
Total stillbirths..... 7 per cent
No treatment in previous series.....19 per cent
No premature stillbirths had over three treatments.

One per cent were full-term stillbirths, and 6 per cent were premature stillbirths. In a previous series in which the mothers received no treatment there were 19 per cent stillbirths. In the series with treatment there were no stillbirths.

PLACENTAS

Positive for syphilis.....28 per cent
Negative for syphilis.....26 per cent
Influenced by treatment.....46 per cent
In series of 1000 placentas 40.6 per cent were positive for syphilis in cases having a four-plus Wassermann.
Twenty-three per cent of the positive placentas had less than four treatments.

The placentas were positive for syphilis in 28 per cent of the cases, negative for syphilis in 26 per cent, and influenced by treatment in 46 per cent. Twenty-three per cent of the positive cases had less than four treatments.

SEROLOGY OF BABY

Positive for syphilis.....18 per cent
16 per cent of these had less than six treatments.
No case that had more than eight treatments gave positive serologic evidences.

MATERNAL WASSERMANN

A four-plus Wassermann not influenced by treatment .....48 per cent
39 per cent of these had less than six treatments.
27 per cent had less than four treatments.
52 per cent had a positive clinic and a negative labor Wassermann.

When the pregnant woman came to the clinic she had a Wassermann and then treatment. During labor the Wassermann was repeated. Fifty-two per cent had a positive clinic Wassermann and a negative labor Wassermann. Eighteen per cent of the babies were positive for syphilis.

This is a cross-section of a full-term placenta. A placenta positive for syphilis means that the villi are enlarged; they are crowded together and the blood supply of the individual villus is gone.

What happens when a syphilitic baby *in utero* is delivered as a stillbirth? The syphilis does not kill, but shuts off the blood supply of the placenta and the baby dies.

What happens when we treat these cases? From looking over a large number of syphilitic placentas (we have examined several thousand) we see that the villi are enlarged and closely packed together, but there is enough vascularity left to allow the baby to attain viability or go to term. The baby born of a syphilitic mother is always a hazardous proposition. Though in a large number of cases it does not give evidence of syphilis early in life, it gives this evidence later.

At one time I rather agreed with Holland, of England, that stillbirths were due to a failure in the formation of the blood vessels. At the present time I am inclined to believe that it is a closure of the vessels.

Here are some slides showing the distribution of the organism of syphilis in a case of congenital syphilis. Organisms were found in the kidney, aorta, skin, thymus, lung, liver, spleen, heart and adrenal. Autopsies on several hundred babies showed the organism to be found more frequently in the lung than in any other tissue.

131 Forrest Avenue, N. E.

PUBLIC HEALTH SERVICE COOPERATIVE PROGRAM IN MISSISSIPPI FLOOD AREA*

By JOHN MCMULLEN, M.D., F.A.C.S.,†
New Orleans, La.

The high waters began in the upper Mississippi Valley during the last part of 1926 and continued to rise periodically until the latter part of April, 1927, when the flood reached its height. Contiguous territory in Missouri, Illinois, Tennessee, Arkansas and Mississippi were overflowed to an extent never before known. As the flood waters continued south to the Gulf, a large portion of Louisiana was later flooded. So widespread was the flood with the consequent loss of property that it has been described as the greatest peace-time calamity in our history.

Following a conference in Washington about the middle or latter part of April, 1927, the Red Cross immediately mobilized and organized measures of emergency relief in the flooded areas with headquarters at Memphis, Tenn. The Army, Navy, Coast Guard, Public Health Service and other government agencies were in active cooperation with the Red Cross to render all possible assistance in the emergency relief measures.

The writer was appointed as the Public Health Service representative and directed to proceed immediately to Memphis, Tenn., and cooperate with the Red Cross.

The state health officers of Tennessee, Kentucky, Missouri, Louisiana, Arkansas, Mississippi and Illinois were advised by wire by the Surgeon General's office that the writer had been assigned to cooperate with the Red Cross at Memphis and to serve as liaison officer between state health officers, public health service and other agencies in connection with the prevention of the interstate spread of epidemic diseases in the flooded areas.

When we consider that the flood waters covered 20,000 square miles of territory in the States of Missouri, Tennessee, Kentucky, Arkansas, Mississippi and Louisiana and directly affected a million people, driving them precipitately from their homes, we begin to realize the tremendous problems which had to be met.

The first problem, of course, was to rescue the people in the stricken districts and carry them to places of safety, then to shelter and feed them. This was accomplished by the Red Cross, with the aid of the cooperating agencies, with characteristic zeal and promptness. So well was this done that the loss of human life was reduced to the minimum.

Refugees were placed in camps established in Illinois, Missouri, Tennessee, Kentucky, Arkansas, Mississippi and Louisiana. The Red Cross had 149 of these concentration camps in which 330,000 people were cared for. The largest number under the care of the Red Cross at any one time was 200,229. Forty per cent of these camps were established in Arkansas, 20 per cent in Louisiana, 15 per cent in Mississippi, 12 per cent in Missouri, and the remainder in Illinois, Kentucky and Tennessee. Public health problems of tremendous proportions promptly presented. It was necessary that these be met efficiently and effectively without delay, if these million people were to be saved from epidemic and other diseases.

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*Read in Section on Public Health, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†Senior Surgeon, United States Public Health Service; Director, District No. 4.

Immediately after the writer arrived in Memphis on April 25, 1927, the Surgeon General directed all service officers on field duty in the affected states to report to him for flood duty. At least one such officer was already in the states and they were promptly assigned to flood duty in the office of the state health officers. At the very commencement, therefore, one or more experienced service officers were on exclusive flood duty in each state in close cooperation with the state health officer.

A conference of all state health officers of the affected states and others was held in Memphis on April 28, 1927, on the invitation of the National Medical Officer of the Red Cross. This conference was most helpful. One of the decisions reached at the conference was that all public health matters would be handled through the state health officers exclusively. This proved to be a very happy decision in handling the many perplexing problems which followed.

In conference with the National Medical Officer of the Red Cross, it was agreed that the writer should undertake the task of obtaining and assigning to the states trained public health personnel as the major part of his work. It was realized that the public health service personnel available at this time was inadequate to meet the immediate needs and demands of the situation, and it was therefore decided to appeal to some of the neighboring states which were unaffected by the flood. The following telegram was therefore sent to the state health officers of Massachusetts, Connecticut, New York, Michigan, Wisconsin, Minnesota, Ohio, Virginia, Alabama, Georgia, North Carolina, South Carolina, Texas, Maryland and Florida:

"Flood disaster has developed urgent demand for experienced health officers with administrative ability, sanitary engineers, epidemiologists and enormous need for biologics. We know we can count on your state for help. In order to answer calls, it is necessary to know in detail names, qualifications, salary or expenses, or both; time available and for how long, two weeks, a month, two months and so forth, for each person available. Also advise quantity and kind of biologics available now and later conference of state health officers of seven affected states with United States Public Health Service here agree that requests for and offers of professional service and material be cleared by state health officers through Medical Service, American Red Cross, which will bear expense when necessary."

This telegram was signed by the writer over his official service title in cooperation with the Red Cross.

It was known in advance that assistance would be given, but none of us was altogether prepared for the veritable avalanche of telegrams which came offering all possible help. Every state health officer promptly wired offers of assistance and signified that his state was not only willing but eager to help in any possible way. Several state health officers voluntarily came on and personally rendered valuable service, and there is no doubt that all of them would have done likewise had it been considered necessary. It was at this time that the Surgeon General telephoned the service representative at Memphis and stated that he was prepared "to strip the service to meet your needs." Thus trained sanitarians and biologics in plenty were assured to meet all emergencies and needs of the public health in the greatest peace-time disaster in our history.

Later in the campaign there was great need for trained sanitary inspectors. The Surgeon General wired this to all state health officers and the response was equally reassuring.

With an abundance of the best sanitarians of the country to select from, and an ample supply of biologics, it was necessary for the state health officer only to make known his needs and state exactly what he wanted.

Personnel was accepted only through state health officers and was assigned directly to the state health officer making the request for aid. Biologics were furnished by the states without cost. State personnel was furnished, with all salary paid by the state and expenses only to be paid by the Red Cross. In the beginning the Red Cross purchased large quantities of biologics but later these were furnished very largely by the various states. The salary and expenses of all public health service personnel was paid by the service. The total number of personnel furnished by the Public Health Service was thirty-eight. Of these, twenty-four were medical officers, eight were sanitary engineers and six were scientific assistants. These officers were practically all trained public health workers and the majority of them were detailed to this duty by reason of their expert knowledge.

The flood sanitary work was conducted under the direct supervision of service officers, working under authority and in cooperation with the various state health officers. These officers were assigned to the state health officers in the flooded states and acted as their constant aids and advisors.

There were seventy-six trained public health workers furnished by unaffected states. These consisted of physicians, sanitary engineers and sanitary inspectors. The average stay of these

CHART I

	Tennessee	Arkansas	Louisiana	Mississippi	Total
Houses completely screened	483	2,348	648	3,276	6,755
Houses partially screened	.....	.....	.....	20	20
Windows screened	2,387	12,200	2,753	14,000	31,340
Doors screened	1,440	7,304	2,123	10,238	21,105
Number of counties	4	15	9	9	37

was about one month. These were then replaced either from the same state or from another which had offered assistance. All of the states were not called on for assistance for the reason that it was not necessary, but a complete file was kept up-to-date at all times, to be used when needed. All personnel, except nurses, was assigned to the state health officer who detailed them within his state wherever he thought necessary. The nurses were furnished by the Red Cross.

As soon as the people were rescued and placed in camps, health protective measures became of prime importance and were promptly inaugurated. These included the inoculation of all refugees against typhoid, vaccination against smallpox, safe water supplies, safe disposal of human filth and other refuse, safe food and milk supplies, proper drainage of camps, mosquito control and isolation of communicable diseases.

In all of these the service personnel played a conspicuous part. A total of 469,442 persons were inoculated against typhoid and 137,340 vaccinated against smallpox in the six states. In the post-flood sanitation work, 4,119 privies have been built in Louisiana and 2,330 in Mississippi; 20,175 wells were chlorinated in Mississippi, 11,142 in Louisiana and 1,600 in Tennessee. In the campaign against malaria, oil was sprayed on pools, quinine administered and homes of malaria-carriers screened. This screening program was considered as an emergency measure and the Red Cross furnished the money for all materials and labor when necessary. This screening program was carried out under the direct supervision of the senior sanitary engineer of the service with the assistance of several other service sanitary engineers, all of whom had previously reported for flood duty. It was conducted in an expert manner, and is one of the outstanding features of the flood sanitary work. This work was done in Tennessee, Arkansas, Louisiana and Mississippi, and included thirty-seven counties in these states. A total of 6,755 homes were completely screened. In accomplishing this 21,105 screen doors were made and hung and 31,340 windows were screened. When possible the doors were made by the boys in the state industrial schools, thereby enabling the Red Cross to save the cost of labor and pay only for materials. These screen doors have been constantly improved until now they represent, it is believed, the maximum of efficiency with the minimum of cost. The average cost of the labor and material of these doors was $1.41.

In Arkansas this screening work was done in seventeen counties, which included 699 plantations. In the same state the Red Cross Plant, supervised and directed by Public Health Service personnel, made 6,228 screen doors in twenty-five working days. These homes were small cabins and the cracks in the walls were made mosquito-proof by the tenants by papering the walls with old newspapers or other available material.

It is realized that the number of homes screened is relatively small, but it is a beginning in the right direction and should be considered in the light of seed planted. It is hoped and believed that this small start is only the beginning and that screening against malaria will be a widespread practice in our Southern states. As a matter of fact, the idea has already been sold and some counties are starting county-wide campaigns for screening, using the United States Public Health Service type screen doors.

The program of work passed through three stages, each merging into the other: emergency, post-flood sanitation and permanent health organization. The line of demarcation, however, is by no means clearly defined.

A large proportion of the many thousands of refugees in these Red Cross camps observed practical public health procedures and gained a perspective of the prevention of disease for the first time in their lives. The need for continuing these health activities beyond the emergency period was early recognized and steps were taken to amplify and extend the work without any intermission. It was also realized that the most practical way to accomplish this was to establish full-time county health departments throughout the flooded region. Early in June, therefore, a conference was held in New

CHART II

	Missouri	Mississippi	Arkansas	Tennessee	Kentucky	Louisiana	Total
Flooded counties	6	10	23	3	4	31	77
Doctors	5	10	10	3	2	14	44
Nurses	4	9	13	3	3	7	39
Sanitary inspectors	3	10	9	3	2	15	42
*Clerks	3	5	4	2		10	24
Total	15	34	36	11	7	46	149

Orleans which was attended by all interested agencies. The result of this conference was that full-time health departments would be established in seventy-seven counties representing the flood area. The states, counties, Public Health Service and the Rockefeller Foundation were to share the expense in accordance with approved budgets. Although the work of establishing these health units has, for various reasons, been somewhat slower than was hoped for, the majority of them are now established and functioning satisfactorily. There are now on duty in these seventy-seven counties forty-four doctors serving as full-time health officers, thirty-nine nurses, forty-two sanitary inspectors and twenty-four clerks, a total personnel of one hundred and forty-nine (see attached charts showing states in detail). Many of these were trained for this work in Indianola, Miss., where the Rockefeller Foundation established a training school for health officers, nurses and sanitary inspectors. It is hoped and believed that all of this territory will soon be organized and functioning with a complete personnel on duty. The Public Health Service is assisting to a very material extent in financing these full-time units, in the payment of salaries of health officers, nurses and sanitary inspectors. To assist the state health officers in developing these plans and supervising the work, the Public Health Service has detailed officers to the various state boards of health.

All of these public health measures, extending as they do, through the emergency period, post-flood sanitation and permanent health organization, have yielded most gratifying results and state health officers from the flooded areas report that health conditions were never better. The exception to this is pellagra in Arkansas, Tennessee and Mississippi. The health officers of these states report an increase in this disease. One of the outstanding features of the Red Cross camps was the excellent health enjoyed by the refugees.

Modern knowledge, practically applied, has given most remarkable results. The enormous impetus given public health work as the result of the most disastrous flood in history insures its extension, and it requires no imagination to visualize that we are on the threshold of the greatest and most extensive health program ever undertaken. Let us, therefore, grasp the opportunity for the prolongation of human life.

The Red Cross is an organization intended solely for the purpose of giving aid in emergencies. The state health departments and the Public Health Service render all possible cooperation with the Red Cross during the emergency. The states and the Public Health Service, however, are the agencies which must carry on the public health activities of the nation. These have been splendidly supplemented by the Rockefeller Foundation. It is, therefore, most important that the relationship between them and the Red Cross in these emergencies be such as to insure the fullest cooperation.

Apparently this has been the first time that there has been this organized cooperation between the Red Cross, the state health departments and the Public Health Service in meeting the demands for trained sanitary personnel and biologics in a major disaster in this country.

The smoothly functioning routine established whereby the Memphis headquarters became simply a clearing house gave highly satisfactory results in the Mississippi Valley flood of 1927.

It is believed that in the future we should profit by this experience and agree upon some plan of cooperation whereby the respective agencies would be definitely advised in advance as to what part they would be expected to perform. Some of the advantages of such an understanding would be the immediate availability of the combined resources, avoidance of unnecessary delay, confusion or duplication of effort in meeting the needs of the disaster.

During the fiscal year ended June 30, 1927, the Red Cross reports that relief was provided in seventy-seven major disasters in the United States.

The writer feels that this paper would be most incomplete did he fail again to acknowledge that splendid, constant and sympathetic cooperation of the state health officers.

CHART III

	Missouri	Mississippi	Arkansas	Tennessee	Kentucky	Louisiana	Total
Flooded area in square miles	798	3,073	6,600	375	372	8,707	19,925
Number persons involved in flood territory	29,608	131,193	400,000	11,300	11,000	325,084	908,185
Privies, cess-pools and septic tanks destroyed	4,500	10,200	5,000	100	600	.....	20,400
Wells and cisterns overflowed	4,500	24,255	11,000	3,000	3,500	.....	46,255
Typhoid vaccinations complete	38,343	115,110	152,000	9,989	56,000	98,196	469,442
Smallpox vaccinations	2,056	22,729	37,000	155	3,400	72,364	137,340
No. of privies, cesspools and septic tanks made sanitary	52	.....	.....	.....	.....	13,773	13,825
Number of privies built	.....	2,330	.....	50	200	4,119	6,699
Number of wells chlorinated	.....	20,175	.....	1,600	.....	11,142	32,917
Yeast distributed, pounds	.....	.....	.....	1,930	.....	.....	1,930
Quinine distributed, grains	400,000	.....	.....	353,600	.....	.....	753,600

It is also desired to acknowledge with appreciation the unfailing courtesy and cooperation of the National Medical Officer of the American Red Cross. All were most helpful in the many trying situations and during days which were, at times, tedious.

305 Custom House.

DISCUSSION (*Abstract*)

Dr. Oscar Dowling, New Orleans, La.—In the recent flood catastrophe the unit organizations which took part in the work of rescue, preparation and maintenance of camps, sanitation and protection of public health were the American Red Cross, Federal agencies assisting the Red Cross, United States Public Health Service, National Guards and State and local health officials.

Very naturally, as you have heard Dr. McMullen say, the American Red Cross, even before the flood waters arrived, had Red Cross emergency corps ready for action.

I attended the meeting in Memphis of representatives of these various agencies and subscribed to the items of agreement made at that meeting. I did my best to carry out the part of the program that was delegated to the state health officer. Frequently I insisted that the local health officer should function and was frequently criticized for the delay that this necessarily entailed. However, in passing, it seems to me that local effort is important, and cooperation with outside agencies a feasible and practical part of this problem.

It will be seen at once that the state health officer is concerned with the aspects of sanitation which relate to protection of public health, and while it is incumbent upon him to work harmoniously with all agencies he must give special support to organizations which function primarily for the prevention of diseases and the promotion of health. The United States Public Health Service is one of these. The American Red Cross having now a medical department or division is also concerned with public health.

When the catastrophe has occurred and chaotic conditions obtain, it is not always wise or practicable to insist that each specific organization maintain only its own line of service. But in the confusion which follows a great flood, a great fire or any other disaster, if a plan of separate activities had been agreed upon, then there would follow less infringement and less dangerous delay.

Theoretically at any rate, the duties of the agencies concerned are clear. The responsibilities of the Red Cross are pertinent in four lines of activities:

(1) Rescue of people and live stock.

(2) Provision for relief camps.

(3) Maintenance of refugees in emergency camps or quarters, including feeding, where necessary.

(4) Transportation back home of sufferers and live stock and sanitary rehabilitation of communities and homes.

Camp sites should be selected and camps constructed by National Guard or Army officers. In view of the importance of safe water supply and proper disposal of wastes the state board of health should be consulted as to the selection of locations for camps. Since Army men understand sanitation, the building of latrines and putting up of tents in an orderly way, it should be their duty to do that part of the work. The supply division of the Red Cross, knowing where these camps are situated, would have supplies ready, and the United States Public Health Service, together with the State Board of Health, through their representatives, could have such rules enforced as would protect the public health and provide care for those already sick. The Medical Division of the Red Cross would have personnel and medical supplies ready.

I have said in theory this program is easily understood, while practically it does not always work out. Happily, in Louisiana, in the strenuous weeks that followed the flood there was most cordial cooperation on the part of all the organizations, and each phase of the work was looked out for, in the main, efficiently and satisfactorily. The Public Health Service having at its command a large number of executives was prompt to meet the situation by sending to Louisiana, and I assume to the other states also, men who had had long experience in rural sanitation, the prevention of typhoid, malaria and the supervision of water supplies. These executives were invaluable to us. We also had most efficient help from a number of states, notably Maryland, New York, North Carolina, Texas, Georgia and Alabama. The physicians and engineers sent us by these states were also experienced men. We could not have obtained personnel of this character in any other way than through the good will of the Public Health Service and state health organizations.

Dr. McMullen, as liaison officer between the United States Public Health Service and the Red Cross, proved the value, necessity and efficiency of an officer of this kind. It was no more than natural that mistakes should occur and that some things should be left undone, but after the liaison officer established his relationship with all three organizations, Red Cross, State Health Officer and his own United States Public Health Service, mistakes and misunderstandings did not occur.

Dr. C. W. Garrison, Little Rock, Ark.—It is a pleasure for those of us in the flood area to acknowledge with sincere gratitude and thanks the wonderful service which we received during the late disaster. We will never forget the immediate mobilization through the American Red Cross, the sympathetic and immediate telegrams from co-workers all over the country, almost from coast to coast and from the Lakes to the Gulf.

I am grateful for the opportunity to express our deep appreciation of the aid rendered Arkansas by the Red Cross, the U. S. Public Health Service, U. S. Army and Navy, the various states, counties and cities and universities in the assignment of efficient trained personnel, including physicians, sanitary engineers, epidemiologists, sanitarians, nurses and inspectors. We should also be ungrateful if we did not give public recognition to the very splendid cooperation and service afforded by the railroads.

Just as we resented any criticism that was made of this Government during the war for its mistakes, we should likewise resent any vicious criticism of any organization, agency or individual engaged in relief work during this great disaster which had to be projected as an emergency measure without time or preparation or counsel. Some valuable lessons should be learned and we should profit from the experiences recently gained from the flood, and every effort should be made to organize, coordinate and correlate the health forces of the country in order that they may be mobilized more quickly and more effectively in times of future disaster. An editorial appearing in one of the papers a few days ago indicated that the Red Cross would make an effort to organize the entire country from one end to the other in an attempt to set up in the various units of government an organization that might function properly in times of disaster, and avoid the necessity of having to create such machinery in times of peril. The health authorities everywhere should lend sympathetic assistance to this effort and join hands with national and local organizations to supply the personnel for meeting emergencies. Reflection tends to lead to the conclusion that the health authorities have been somewhat derelict in promoting plans for emergency relief, and some of our irritation in the past might have been avoided had our foresight been a little clearer and our action a little more definite.

There is another item of importance which should be clarified in so far as possible, and that is a clearer understanding as to what constitutes relief work and what constitutes public health work. A line of demarcation should be fairly well defined. Too often public health workers are drawn into the problems of relief, thereby infringing upon their time and efforts in the prevention of disease.

Mr. J. A. LePrince, U. S. P. H. S., Memphis, Tenn.—With regard to the screen door campaign, there are strong indications that it will lead to the extension of screening of homes of malaria carriers in rural districts where malaria is yet a serious sanitary problem. At present we have least screening of homes where malaria prevalence is highest.

In counties where the county health officer and his assistants give persuasive instructions to the farm tenants as to the proper care of screen doors, the tenant homes remain effectively screened for three or four years and emergency repairs are promptly made by the farm tenants.

Dr. J. W. Mountain, U. S. P. H. S., Nashville, Tenn.—A word should be said about the heroes of the flood who have remained silent and whose praises remain unsung. There are many in this group, but the work of certain ones stands out more prominently.

The local physicians supplied most of the medical and surgical service; they conducted a large part of the immunization work, and did all in their power to promote better health conditions. The railroads transported the refugees, gave them shelter in box cars, and transported supplies and relief workers. Those in charge of communications, telegraph, telephone and mail, maintained this service under most adverse circumstances. The military forces, both state and federal, placed their facilities, such as motor boats, airplanes and bedding, at the disposal of the stricken people.

The closing remarks of Dr. McMullen's paper impressed me the most, and that was the need of some definite plan for coordination of agencies to meet future emergencies. Disasters constantly recur, and there should be developed some program in which each agency may, without delay, take up its part.

Dr. A. T. McCormack, Louisville, Ky.—We know that the only thing that can give any relief in the future commensurate with the character of the disaster and the size of the health problem at that particular time is organization, finances and trained personnel. When we have war, what do we do? In America we mobilized or marshalled a lot of men, and many were killed because we had not enough trained men. Our men were the best individual soldiers that ever went to the front, but were slaughtered for lack of training. What are we doing in our public health work? We must see that it is financed and that the officers of the peace-time job are taught their responsibility. Legislation on this matter is before Congress now. I wonder how many of you have seen your congressman and senator and discussed with them the importance of the Ransdell bill, which will make it possible for the Public Health Service to do the important thing it is intended to do.

In the flood area there was an organization. Take two contrasting counties in Kentucky: in one there were 6,000 refugees; in the other there were 600, and it cost the Red Cross as much to care for the 600 as it did to care for the 6,000. We had an organized health department that immediately organized the militia, and were ready to act for our neighbors in Missouri. They did the same thing for us when they were organized and we were not organized. Everybody was hodgepodge; lives and money were wasted.

We need in every county such an organization that can function effectively and can function all the time. In Kentucky, as a result of this flood, we have 21 more counties organized. In the counties where we had the flood disaster, we have less smallpox, less diphtheria, less typhoid. In the adjoining counties, where they had no flood, they are still having exactly the same results of the lack of local health management that they were having all the time, and which all the unorganized counties in this country are having.

Secretary Hoover told me that if the health officials of America did not take this opportunity to make public health the main issue, we were asleep at the switch. We should go before Congress now, with the evidence in our hands; and when we have a full-time health department properly functioning, we will have the healthiest section and the happiest. We should not waste our time in considering diseases that for fifty years we have known how to prevent.

I hope we will rise in our might and convince the public of America that the greatest problem is the problem of unnecessary illness; that the greatest waste is the waste of human material, and that the greatest problem is the getting rid of unnecessary disease.

Dr. S. W. Welch, Montgomery, Ala.—Dr. Mountain has suggested that there should be some organization on foot barring the time of the next disaster that comes along. I simply wish to inform you that the American Medical Association has taken this question up and has directed the presidents of the state medical associations to be ex-officio guardians of situations which arise in their states: that is, the president of the state medical association and the local county medical society are to take charge of the situation at once when an emergency arises and direct affairs until a proper organization can be made. That has been accepted in Alabama, and I presume has been accepted in every other state in the Union.

Dr. McMullen (closing).—When the telegraphic request to the state health officers was sent last April for assistance, I was sure of your cooperation. I can assure you that the generous responses came as a great relief to the Memphis Headquarters. Your prompt action saved the day. In no other way could this crisis have been met. The offers of assistance came from all sides, and I sincerely regretted that it was not possible to call upon all the states that volunteered. There was no lack of appreciation for those states not called upon.

ECONOMIC ASPECTS OF PELLAGRA*

By C. W. GARRISON, M.D.,†
Little Rock, Ark.

This subject is introduced not to discuss the etiology or treatment of pellagra, nor to advance a fine spun theory, but because of the increasing prevalence of the disease, at least in Arkansas, and because of its tremendous economic importance.

On account of the woefully inaccurate morbidity reports, no one can state accurately the number of cases in any given area where pellagra is prevalent. The death rate does not furnish a basis for accurate estimate, as the rate varies widely from time to time. The incidence may be marked one year and the death rate low, and later the incidence may drop sharply with a contrastingly high death rate. Both the incidence and death rate were high in Arkansas during 1926, judging from the communications from both physicians and lay persons and conversations with physicians generally over the State. Four hundred and ninety-one deaths were recorded last year, which probably represent 85 to 90 per cent of the total.

No opportunity is yet at hand for tabulating the 1927 deaths, but judging from the same sources there is a marked increase in incidence to date this year over last. Unquestionably there is a sharp increase over last year in the flood area.

Irrespective of etiology, or of the various treatments preferred by individual physicians, there is a unanimity of opinion regarding the role diet plays in the treatment and prevention of the disease.

When an insidious, lingering disease reaches the proportions of 5,000 to 10,000 cases with approximately 500 deaths per annum in a population of 1,800,000, it should become a live issue not confined to the economist and statistician but for the commonwealth.

Since it is agreed that a balanced ration is the essential factor in the control and cure of the disease, and such a ration can be easily produced in the area affected by the people affected, it would seem natural that intelligent, consistent, energetic effort be directed to the production and supplying of that food.

Governor Martineau has called a conference December 6, inviting the agricultural, educational, health, industrial, commercial and civic agencies, in fact, all agencies of the State, to discuss and promote a program, extending over a period of years, to raise more foodstuffs for home consumption.

This is neither a new nor novel idea. A somewhat similar project was promoted during the World War but for a different purpose. One of the most serious problems to solve is the application of such a program to the plantation or tenant farmer. But if the business men and the bankers who extend credit may be brought to see that it is to their interests to require the landlord to furnish garden plots and compel his tenants to raise gardens, keep a few chickens, and, where possible, a cow, and if the same principle were applied to the small farm owner, good should come out of it.

The agricultural demonstrators have been advocating diversification and the "Live at Home" plan for a number of years, but the problem

*Read in Section on Public Health, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

†State Health Officer.

above referred to does not necessarily involve the question of diversification of crops. Those of us who have tried it know that many difficulties beset the landowner who is a grower of cotton and who is dependent upon the present labor and marketing situation.

It is with confidence and certainty that the statement is made that if every individual farmer and every tenant farmer would raise sufficient vegetables and poultry for home consumption, acquire a milch cow where practicable, and if arrangements were made for the slaughter and sale of a few beef cattle in every community each winter, pellagra would be greatly reduced and the economic condition of the State would be markedly improved.

Any disease that affects the health, happiness and prosperity of the public may rightfully be classed as a health problem. The medical profession has accepted the responsibility of promoting public health throughout the world and the public rightfully expects leadership in this respect from the profession.

Is it not then time for us as physicians and health authorities to cease quibbling and arguing over whether pellagra is infectious or dietetic in origin and throw our influence and energy to the problem of preventing the disease?

Pellagra is widely distributed throughout the Southern states. It would, therefore, seem proper and timely for the Southern Medical Association to adopt suitable resolutions to that end. The following resolution is submitted for approval by this Section and recommendation to the Southern Medical Association for adoption:*

Whereas, the disease pellagra is one of the important public health problems confronting the South, and

Whereas, there is clear evidence that this disease has increased this year, especially in flooded areas of the Mississippi Valley, and

Whereas, pellagra is generally recognized as being intimately bound up with the economic factors influencing the character of the food supply of the people affected, and

Whereas, both in the treatment and in the prevention of pellagra a proper diet is of prime importance;

Therefore, Be It Resolved, That the Section of Public Health go on record as supporting the agricultural and other agencies now engaged in promoting a diversified farming program, and further, it specifically recommends that, in so far as possible, a liberal supply of vegetables, poultry and milk for home consumption be secured to the individual farmer and tenant, and further,

That the Section requests every practicing physician in the South to lend his active support to this end, and

Be It Resolved Further, That this resolution be recommended for adoption to the Southern Medical Association at its next annual meeting.

*[The resolution which follows here was presented to the Section on Public Health of the Southern Medical Association at the closing session of the Section, the last afternoon of the annual meeting, November 17, 1927, and was unanimously adopted by the Section. The Constitution and By-Laws of the Southern Medical Association provide that resolutions adopted by a section are referred to the Council as the Board of Censors and Executive Committee of the Association, and by the Council referred to the Association at a general session for final action. There was no meeting of the Council, or general session of the Association, after the adoption of this resolution. It will be considered by the Council at its next sitting and by it referred to the Association at a general session of its next annual meeting to be held in Asheville, North Carolina, November 1928, at which time it will probably be formally approved and adopted.—Secretary-Manager, Southern Medical Association.]

DISCUSSION (*Abstract*)

Dr. R. K. Flannagan, Richmond, Va.—I know little about pellagra from practical experience. It is not a problem in Virginia. I do know this, however, from contact with those who have given much exhaustive study to the subject, that this disease will never be eradicated if consideration of the character of the food supply of the people in the districts affected is ignored. I think Dr. Garrison very conservative in the wording of his resolution, for the disease is certainly "bound up in the factors that have to do with the food supply of the people who have it." Whether certain infectious agents have their influence in the beginning of the train of symptoms which makes up the disease is entirely beside the mark.

We know that tuberculosis is caused by a germ that gets in the bodies of most of us, but after all the disease itself does not hit us until something else happens to us. I am not disposed to split hairs over the primary cause of pellagra. But the evidence seems to be clear that a restricted diet in which certain vitamins are absent tends to increase the number of cases. We know, too, that in great areas affected by the Mississippi flood the people are in dire poverty, and among these people are many who have not the kind of food to give them the stamina to throw off disease. The saying of Dr. Gorgas that a living wage is the greatest public health factor, is applicable here. For the fellow who has not enough food to eat of the right kind is sooner or later going to be a sick man.

The solution of the problem of pellagra therefore is in the domain of social economy. It is a question of ways and means. Dr. Garrison is calling a conference of people who can advise him along economic lines. Physicians can help him only incidentally. He suggests that a garden, chickens and a cow be provided for each family. This is fine, but when this is done there is still the great problem left of getting the householder or tenant to feed the products from this equipment to the family. My experience with people living close to the abject poverty line is that when they have milk, butter, eggs and vegetables they will sell them in order to purchase the other things they need, and then live on cheaper and less nourishing food. Perhaps plantation gardens, henneries and dairies may be in some places established and "rations" of vegetables, dairy and poultry products issued, just as pork and cornmeal are now. The farm and home demonstration agents are doing much excellent work in this field. The public

health officer and physician must collaborate with them in dealing with this problem.

Dr. J. A. Hayne, Columbia, S. C.—The first time I ever attended the Southern Medical Association was at Hattiesburg, Mississippi, about sixteen years ago. At that meeting Dr. Bass brought a rooster from New Orleans which he claimed to have given pellagra by a certain diet.

Ever since 1906, when Searcy, of Alabama, and Babcock discovered there was such a disease as pellagra, there has been the same discussion that will go on to the end of time. I wrote in 1916 as an Annual Report to the State Board regarding pellagra: "The disease is still a medical sphinx, the solution of its cause being yet unknown. However, we know that by putting a patient on a diet of nourishing food, and rest in hygienic surroundings, a majority have gotten well. The hope of finding a specific drug to cure these cases has been practically abandoned."

I have no reason to change anything that was said at that time.

Dr. Garrison desires that we go on record as wishing to improve the economic conditions of people so that they may have plenty of milk, vegetables, chickens, cowpeas and eggs, and that they will eat these things after they have them. If they will do this, they will not have pellagra or tuberculosis, so that we may be able to stamp out both diseases at the same time.

Dr. A. H. Hayden, Columbia, S. C.—I have very grave doubts that economic conditions play anything like the important part in the development of the disease that some others seem to hope, and I rise this afternoon to give you one or two recent experiences of mine.

Some three or four years ago in Marlboro County, my attention was called to one of the most vigorous boys I had seen in years, belonging to one of the best families in Marlboro County, apparently well except for a typical pellagra rash. There were no other symptoms.

Not many months ago, as our State Health Officer will remember, we received a letter from a prominent physician in a very prosperous town, Hartsville, South Carolina, saying he had a dozen or more typical cases of pellagra, and that he could not convince himself it was not a highly contagious disease. A few weeks later we received a letter addressed to the State Board from a reliable physician of a little town called McBee, South Carolina, in which he said about the same thing, that he believed it was a highly contagious disease; that he had about 100 cases in his practice. He invited an investigation. As Epidemiologist, I went over and spent a full day with him. He showed me twenty or thirty cases and then said, "If you will remain over here a day or two I will show you at least 100 cases." His practice extended over portions of three counties. He lived at the junction of these three counties. Of the patients whom I saw, I should say fully 80 per cent were among people by no means poor, but prosperous, well nourished and well-to-do, who enjoyed every variety of diet.

Another remarkable fact is this: I cannot recall in the number this physician showed me that I saw more than one case in but two, or possibly three, families. In the vast majority of families where there is a case of pellagra, there is one case only.

Miss Ann Gabriel, Red Cross Nurse, Marked Tree, Ark.—During the flood I was sent up to Poinsett County to do some inoculations. When I went in, my predecessor told me there were eleven patients with pellagra in the little county to whom the Red Cross had been furnishing rations. I thought I would do the follow-up work. In about a month's time from those eleven cases we made contact with 233 cases in 134 families. Home visits were made continuously to these people, and on taking their histories I found out of the 234 cases only four families had milk, eggs and vegetables in anything like adequate amounts, and in these four families the cases of pellagra occurred in very finicky eaters. They did not eat most of these things. Their average diet was salt meat, dried beans and biscuit made out of water and self-rising flour.

The Red Cross furnished rations which included a quart of tomatoes, a quart of buttermilk, dried fruit and a fresh vegetable every day. After two months' rations every case was better, most of them were well, and we did not lose a single one.

Dr. R. M'G. Carruth, New Roads, La.—We have almost no pellagra in my section, the lowlands of Louisiana, but I have seen a few cases in my practice, one a very typical case and seemingly very near death when I made the discovery. In handling this case, I followed closely the treatment outlined by the late Dr. Isidore Dyer, of New Orleans, who considered the hydrobromate of quinine almost a specific for the condition.

Dr. Toulmin Gaines, Mobile, Ala.—A lady in the best of circumstances and with proper diet lived next to an infirmary and was visited by one of the inmates who had pellagra. This lady developed an uncontrovertible case of pellagra.

A young girl, rather wayward but from one of the best families in town, ran away from home frequently and visited a poor family that lived almost in squalor. There was pellagra there. She developed a case of pellagra and died from it.

In the suburb in which I live there was no pellagra, but in an adjoining suburb there was a great deal. This suburb communicated with mine by railroad track, and in about the third house in my suburb a man died with pellagra. Three or four houses from that, a cook died. The people whom she lived with had every comfort and diversified diet, and she was healthy and fat, but she lived where there was pellagra. She died. In the house next door to her a lady who lived under ideal surroundings developed pellagra and died.

Dr. W. P. Moore, Memphis, Tenn.—I have been with the Shelby County Pellagra Hospital for nine years. The impression I have gained is that back of the pellagra symptoms you will find a pathological condition of another nature, which is responsible for the pellagra: for instance, a tumor, a four-plus Wassermann or many other things.

On proper diets the patients improve. On the other hand, if because of some other abnormality the diet is not assimilated, they do not improve.

Dr. Joseph Goldberger, U. S. P. H. S., Washington, D. C.—What I have to say about pellagra I have already said, and it is in print. I would really appreciate it as a high compliment if some of you gentlemen who apparently differ from me would read what I have printed.

I am well aware, and I have so stated, that there are many things in pellagra that are strikingly suggestive of infection.

Sometime ago (probably two or three years ago) Dr.

Justine, of Boston, in a paper appearing in one of the journals reported a very interesting case. He reported that somewhere in Massachusetts there was a house in which a family at one time lived and a member of the family developed diabetes. That family moved from that house; another family came and occupied it again. A case developed in this household. Another family, and again diabetes developed in this third family. I cannot recall how many generations of tenants moved in and out of this house, and each time at least one case of diabetes developed. This is exceedingly excellent evidence that diabetes is a highly communicable disease.

Dr. Garrison (closing).—I did not expect the discussion to develop in the form of an argument as to whether or not pellagra is infectious or dietary in origin. I tried to bring out the fact that we were generally agreed that the fundamental thing in prevention and cure is the proper diet. This being the case and the diet agreed upon, the logical question follows, "How are we to secure this diet for the average pellagrin?" Physicians can contribute much to the solution of this most important problem by advocating a more general use of gardens. I have been in company with many physicians in the country visiting pellagrins without any grain foods, chickens or cows. I have rarely heard a suggestion that the planting of a garden, the securing of a few hens or a cow or a goat would be greatly helpful in the future. We should throw the force of our organization and the support of the medical profession to the program of the agriculturists and secure more food production for home consumption.

If we go on record as declaring diet to be essential in the treatment and prevention of pellagra, and attempt to secure the support of the physicians throughout the country in promoting this program, we will go a bit further than we have thus far.

PROLONGED DISABILITY FROM BACKACHE*

By W. W. HARPER, M.D.,
Selma, Ala.

Several years ago Erichsen gave claim agents nightmare by running railway spine as a leader in the surgical world. Now, through a better knowledge of the subject, this ghost has been relegated to the antique shop for the use of osteopaths, chiropractors and malingerers. During the reign of Mr. Erichson railway surgeons approached every case of injury to the spine with prejudice, but since the king's dethronement the surgeon has learned properly to evaluate the patient's symptoms.

While a few cases of backache having a traumatic history are speedily cured with "a green plaster," the majority of cases have a pathological cause. When it is remembered that the back is composed of several joints held *in situ* by strong ligaments, one realizes that pain may result from an arthritis or a ruptured ligament. Again, many nerves pass through openings in the vertebrae and heavy muscles line the bones. The nerves can be pinched and the muscles inflamed. One also remembers that these same nerves interlock with nerves that supply the pelvic viscera. Often a slight injury to the back is the electric button that sets in commotion the pelvic organs. The prostate and seminal vesicles were perhaps already diseased, but, like an undisturbed hornet's nest, were quiet until the back was injured. Immediately there was activity, to some one's sorrow. The following history familiar to most railroad surgeons illustrates the case in hand:

A brakeman attempts to release a stuck brake or throw a stiff switch and feels something "give way" in his back. He walks to the surgeon's office complaining that he cannot bend forward or to one side without great pain. Passive movements induce pain and muscle spasm with tenderness over the affected area. Having ruled out a structural lesion to the cord or vertebrae, the surgeon reports a sprain or rupture of the back ligaments and muscles, with a probable disability of one to two weeks. The back is carefully strapped and sedatives are given. A month passes and the patient is still totally disabled. The operating department calls up to know how soon the patient can return to work. "Two more weeks," is the answer. The patient is no better and the claim agent calls to inquire about the "lame duck." Another month passes and to your disgust the patient is still unable to work. A letter from the chief surgeon adds nothing to your happiness and you begin to wonder if the patient is not hipped or malingering.

Before giving him up, make a rectal examination. You will probably find an enlarged prostate and seminal vesicle. You will then secure the history that several years before he had gonorrhea and that he now has a residual enlarged prostate and seminal vesicle. Thoroughly massage these organs and this will be the result:

(1) A profusely sweating patient, for the procedure is very painful.

(2) As soon as he gets himself together, he will declare his backache gone or very much better.

Then announce to him that the massage is to be repeated twice a week until he is well. This has a wonderful psychic effect. If the patient is faking, he will gladly renounce his ailment rather than have a second treatment. If the backache is real, the massage gives such immediate and marked relief that the patient is

*Read before Southern States Association of Railway Surgeons, Auxiliary of the Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

willing further to cooperate with the surgeon. After a few treatments he is usually able to resume his duties. However, the surgeon must remember that the patient has been absorbing toxins for some time and, in addition to his local condition, he has a systemic infection. To cure this condition, the surgeon must raise his opsonic index. In the experience of the writer, this is best done by giving every five or six days 1 c.c. of sterilized milk intradermally. In every case of prolonged disability from backache, the surgeon should suspect the prostate and seminal vesicle. If an examination confirms his suspicion, a prostatic massage and intradermal injection of milk will in most cases give highly satisfactory results.

If the prostate and seminal vesicle can pass a satisfactory "short arm" inspection, pass in review the nasal sinuses, the tonsils, teeth, gall bladder and appendix. If these be found to be diseased, pluck them out, for it is far better to remain in active service "sans teeth, sans tonsils, sans gall bladder, sans appendix" than to be "on the bad order track" with organs out of tune and every one playing a false note.

DISCUSSION (*Abstract*)

Dr. C. G. Forsee, Louisville, Ky.—As Dr. Harper stated, after a man has been out a week or ten days and intends to return to work, but does not, there is indicated some focal infection. We always assume the attitude when a man tells us his back is hurt, that he is hurt.

In our experience, bad teeth have caused more disability in railway employes than any other condition we have met. Most of these men have infected tonsils. Bad teeth are frequently the sign of an infection, and toxins absorbed from teeth may be the source of real backache or muscle spasm.

Once in a great while prostatic condition has been a factor in our experience, but it is a rare occurrence, considering the number of men we see. Focal infection due to bad teeth is the disturbing factor. Many of these men have weekly payable insurance.

We fill out many blanks when we feel the man is, perhaps, not justified in getting insurance. If there is any evidence of a focal infection, we give him the benefit of the doubt. As to treatment, we use x-ray and lights, which may be of some benefit. We x-ray every case of prolonged disability.

I should like to know what percentage show a definite arthritis.

Dr. Edward T. Newell, Chattanooga, Tenn.—When a man says he strained or injured his back, and has not received a blow sufficient to produce trouble with the bones or with the ligaments, and if he continues to complain of his back, you had better have a good x-ray of his spine. We do not make x-rays of spines in every case, nor do I wish to encourage wholesale roentgen ray examinations, but where a patient with a back injury fails to improve in a reasonable time, he should be x-rayed.

About a year and one-half ago a railway employe came to me, who weighed one hundred and ninety pounds, and said he strained his back at some work that night. I treated him for a day or two along the lines suggested by the previous speaker, but he did not improve. He said that he had "real pain," yet we did not have to give him morphine. We gave him some simple remedies and strapped his back, but he came back the next day complaining and again the following day. I x-rayed him and found he had a large stone in his left kidney, although he complained of his pain in the right side.

Now, the railroad had been paying for this man's attention, and had already been charged for three treatments. As soon as the man was shown the x-ray he had the stone removed, made a nice recovery, and paid his own bill. We would have treated him indefinitely if we had not examined him with the x-ray, and the company would have paid the bill.

Another similar case: a man came in very recently complaining of pain in the back, and said a rock hit him in the back while blasting. No sign of injury was present. After we examined his tonsils, sinuses and everything possible to cause his pain and found nothing, we told him he had no pain.

This man secured a lawyer and sued the company. Later we x-rayed him and found a large calcified mass the size of a fist resting on the right lumbar muscle outside of the kidney, which had nothing to do with the injury.

If we show a real interest in cases of backache when they come to us, examine them frequently, carefully and thoroughly, we will in nearly every case find the cause (if real) and relieve the condition.

Dr. R. S. MacCabe, Oklahoma City, Okla.—The emergency treatment of strapping the back is to immobilize it in line with the spine, and not from side to side. I suggest the following: plaster of Paris splints are made as for anterior and posterior splints on fractured forearms. These are padded with cotton and laid on each side of the spine. Over them are laid the straps of adhesive plaster drawn very tightly, beginning well down over either hip across the back to the opposite side.

Instruct the patient to lie still until the plaster is well set. This procedure keeps the back rigid and gives the patient more comfort than the usual adhesive plaster strapping.

Dr. L. P. Holmes, Augusta, Ga.—Occasionally back pain is caused by injury to a sacralized transverse process of the fifth lumbar vertebra, or one which articulates with the sacrum or ilium or both.

Sacralization is easily determined by x-raying the lumbar spine and sacrum.

We have operated upon two cases of back pain with sacralization in our clinic with satisfactory results.

Dr. A. E. Chace, Texarkana, Ark.—I think it is generally accepted that osteo-arthritis gives pain, yet in a series of x-ray examinations we found marked changes in joints that were entirely symptomless. A great majority of osteo-arthritic cases did not give pain.

Another point which I wish to discuss is sacralization of the lowest lumbar vertebra. If you examine the position of the transverse process of the pelvis in relation to the ilium, you will find that it is separated by

a considerable distance, about three-quarters of an inch, and if you look at it in the anterior-posterior plane, and project the shadow onto a flat surface, it looks as though it were sacralized in many cases. If you take the picture from the side, you see that it is separated by nearly three-quarters of an inch.

The x-ray man always shows you a picture from the front. If you take all these cases of supposed sacralization from the oblique or transverse position, you will find few cases of true sacralization.

Dr. Henry G. Hill, Memphis, Tenn.—The subject of backache was discussed this morning at the meeting of the Section on Bone and Joint Surgery. The question of trauma plus infection was discussed. I believe, however, that we more often see, and have more difficulty in determining the extent of, injury when infection antedates trauma. I was glad to hear Dr. Chace's remarks in this connection.

We frequently see individuals seeking compensation for a back injury sustained in an accident who have all the objective symptoms of a chronic spondylitis (osteo-arthritis). They not infrequently claim, and are in a position to prove, that prior to the accident they were perfectly well and lost no time from work, but since the injury they are miserable and totally incapacitated.

Chronic spondylitis plus trauma responds stubbornly to any form of treatment. Unquestionably trauma aggravates symptoms in some cases.

Dr. Harper (closing).—Every railroad ought to have at certain intervals on its line a well-equipped x-ray man, who knows how to take a picture and how to interpret it. Many chief surgeons do not wish to pay for a picture because it is worthless after they get it.

I wish to report a couple of cases to show the importance of a good x-ray examination. I had myself a focal infection of the shoulder and for months suffered most intensely. Happening to be on a traveling tour, I consulted several physicians in several cities from New Orleans to Boston. Each one made a different diagnosis with several different remedies without any relief. Finally an x-ray was taken, a dead tooth found and extracted and in a few days the pain was gone.

Two months ago I was called to New Orleans to see my wife's mother, who is eighty-one years of age and who had been seriously hurt from a fall. She was suffering most intense agony of head and neck. An x-ray examination by an expert showed a slight fracture of the third cervical vertebra. An orthopedist was called, who put her in a plaster corset with head support. She was soon relieved of her pain and made an excellent recovery. Without an x-ray examination her trouble would have never been diagnosed and she probably would still be suffering.

If every railroad company had a first-class x-ray laboratory available for injured men, an x-ray picture would be of great value. Such a picture would frequently show pathological changes, long ante-dating the injury, thus relieving the company from responsibility for the alleged disability.

Again, if the x-ray failed to show any structural lesion of the vertebra and the physical examination showed no organic lesion of the cord, we should have to seek a focal infection for a cause of the disability.

SOME UNUSUAL THROAT INFECTIONS*

By CHARLES D. BLASSINGAME, M.D., F.A.C.S., Memphis, Tenn.

Streptococcic infections of the throat and mouth are characterized by edema. Local inflammatory edema is caused by lymphatic obstruction. The obstruction in streptococcic infections is due to the predominance of fibrin in their exudate. This fibrin blocks the lymphatic channels, which results in engorgement of the parts. Infections other than streptococcic in which fibrin predominates in the exudate are tuberculous and pneumococcic. Edema would be expected in these infections in accordance with their virulence. Infections in which the exudates are purulent or hmeorrhagic show a less tendency to form edema.

The exudate of staphyloccocus is characterized by pus formation. In infections with this organism we find localized pus formation with little edema. When edema is marked in any infection about the throat it at once becomes an important factor from the standpoint of diagnosis, prognosis and treatment.

From the standpoint of diagnosis, certain organisms characteristically produce edema, as was mentioned above.

From the standpoint of prognosis, the edema has two phases: (1) that of the virulence of the organism which it indicates, and (2) its bearing upon the mechanical obstruction of the respiratory and swallowing apparatuses. When it is so marked as to obstruct the glottis it at once becomes a menace to the life of the patient.

From the standpoint of treatment it presents a complex problem. The first consideration, of course, is to find and, if possible, remove the source of the infection. This is not always possible, by any means, and it is rarely ever without critical aspects, for the reason that in practically all streptococcic infections of the throat and mouth the virulence of which is so great as to be associated with edema of an alarming degree, the source of the infection is either in the floor of the mouth, in the tonsils or in the lymphoid tissue of the pharynx. A virulent infection confined within the floor of the mouth, known as Ludwig's angina, presents a clinical

*Clinic, Clinic Session, Southern Medical Association, Twenty-First Annual Meeting, Memphis, Tennessee, November 14-17, 1927.

entity requiring major surgical procedures, which will be discussed later in this paper.

A virulent infection in a tonsil which is associated with obstructive edema predicates an acute infectious process in the tonsil which under ordinary circumstances would contraindicate its removal. However, a rapidly spreading edema which is causing laryngeal obstruction, in the presence of an infection in the tonsil which appears to be the source of the infection causing the edema, in the writer's opinion justifies the removal of the tonsil, as will be shown in a subsequent case report.

Perhaps the most critical of all conditions associated with an obstructive edema of the throat occurs when the infection is in the lymphoid tissue of the pharynx. Here heroic surgery cannot be resorted to in removing the source of the infection. All efforts must be directed toward checking the spread of the obstructive process, and if that fails respiration must be provided for through a tracheotomy tube until the body resistance can overcome the invading infection. Methods of reducing the edema can be deducted from the mechanism of the obstruction. They are: (1) the use of astringents and (2) scarification. The application of astringents to the involved parts lessens the caliber of the blood and lymph capillaries and so reduces the edema. This also forces the lymph exudate back into the channels where it may be carried away. One of the agents most effective and at the same time most agreeable to the patient is the application of cold in the form of cracked ice held in the mouth.

It is obvious that removal of the stagnated lymph can be provided for by scarifying the edematous tissue. This procedure serves a double purpose. In addition to reducing edema by the escape of the lymph from the tissues, the toxins and other infectious products are removed from the body. Thorough cleansing of the involved parts removes all debris and helps surface drainage.

I wish to report a few cases of unusual throat infections which have come under my care within the past few years. These cases illustrate the alarming degree to which a simple throat infection may progress and the radical measures which may become necessary for its treatment.

Case 1, Edema of the Glottis and Epiglottis, Resulting in Death.—A patient, B. F. T., male, three years of age, began with a sore throat and was seen by the family physician at 9 o'clock at night. It was found that the throat was inflamed and the temperature was 102° F. The throat was mopped with a weak solution of iodin and a calomel purge was given. When he was seen the next day the throat was still red and appeared to be swollen inside. The temperature was reported normal. The throat was swabbed out with mercurochrome.

At three o'clock that afternoon the child began to show difficulty in breathing. The family physician was called and saw him at 5 o'clock. At that time there was great difficulty in respiration. A dose of diphtheria antitoxin was given. The difficulty grew worse, and in response to the physician's call for help I saw the child at 8 o'clock. He was very cyanotic, the eyes were widely opened and protruding. The chest was full of fluid, as was indicated by the loud gurgling noise of his breathing.

I raised the head to insert a Mosher "life saver" tube and the child quit breathing. The tube would not go through the larynx. Without losing time with it, I quickly opened the trachea and tried to restore respiration, but without success. When the trachea was opened a quantity of white frothy fluid ran out of the wound. We gave artificial respiration for about an hour without results. Then we examined the condition of the mouth and throat. There was no tonsillitis. There was a pharyngitis. There was no membrane in the throat. Presenting from the hypopharyngeal region was a large mass of pink-colored edematous tissue which proved to be the epiglottis. It was wedged tightly into the throat so as to close it completely.

We made a diagnosis of edema of the glottis which obstructed respiration. The factors producing death were:

(1) Exhaustion from effort at respiration;

(2) Lack of air in the lungs;

(3) Toxicity from the infection.

A swab was taken from the throat from which a pure culture of *Streptococcus viridans* was obtained.

Case 2, Edema of Glottis Following Tonsillitis.—Mrs. K., age 35, had a severe attack of tonsillitis. Following it, after the inflammation had considerably subsided and the patient was almost ready to be discharged from the hospital, she suddenly began to develop edema of the throat, extending down from the right tonsil. This edema increased and after two days was so marked as to embarrass respiration. The process was developing so rapidly that tracheotomy seemed inevitable unless it could be stopped. Deep incisions were made both posterior and anterior to the tonsil in an effort to drain the source of infection. This was without result. Some thick yellow pus was seen to flow from the center of the tonsil and it was decided to remove the tonsil. This was done quickly under local anesthesia and without complications.

The edema immediately began to subside, and after three days the patient was discharged from the hospital with a clean healing throat.

Case 3, Edema of Glottis Following Tonsillitis.—N. J. C., a man, age 50, had suffered with tonsillitis for about ten days when the throat began to swell on the right side below the tonsil. After about two days the edema had increased to such an extent that respiration became difficult. He was unable to swallow. In view of the increasing difficulty in breathing it became necessary to remove the right tonsil. This was

done quickly under local anesthesia without any complications.

The edema immediately began to subside, and after three days he was discharged with a clean healing throat.

Case 4.—S. J., a male, age 35, in good physical condition, developed a swelling under the middle of the right lower jaw. A pyorrhea pocket around the first right lower molar was discovered by his dentist, who advised that it should be opened. He did not seek further medical aid until the sixth day, although it had continued to grow worse. I saw him at that time, when there was a great swelling over the right side of the face and neck, forcing the head toward the left side. It extended from the ear to the tip of the chin, and from the hairline in front of the ear to below the clavicle. The swelling was very hard and board-like, with no point of fluctuation. The point of greatest swelling and tenderness was under the right lower jaw, midway between the angle of the jaw and the point of the chin.

The tongue was raised toward the roof of the mouth, making it difficult to examine the fauces. This could be done only by pushing the tongue to one side, and not by pressing it down in the middle. There was considerable edema of the uvula, the right side of the palate, and the anterior pillar of the corresponding tonsil. The mucosa under the right side of the tongue was so edematous and red as to simulate a secondary tongue.

The patient was having difficulty in breathing, whether because of the saliva which he was unable to swallow, or from edema encroaching upon the larynx, could not be determined. When he attempted to swallow water it would regurgitate through his nose. The temperature was 103°, pulse 120, respiration 20. The leucocyte count was 12,450, polymorphonuclears 88, large mononuclears 5, small mononuclears 7. An incision was made two inches long at the level of the lower border of the jaw. The tissues cut with great resistance. The incision was then carried beneath the jaw, and extended through the muscle forming the floor of the mouth, where an abscess was entered at the middle of the jaw and a dram of thin flocculent pus was evacuated. Cultures of this pus showed streptococci. A small incision was made below, which converted the wound into the T type. The wound was swabbed with mercurochrome. Two rubber tissue tubes were inserted. Blood cultures made on three successive days were negative. A tracheotomy set was provided. Anti-streptococcic serum was administered. There was some improvement on the second day and the temperature became normal on the third day after the operation. Recovery was complete in two weeks.

Case 5.—Mrs. K., age 35, in rather poor health, had a large swelling beneath the chin between that point and the hyoid bone. The swelling was very hard with no point of fluctuation. No atria of infection were located. The mucosa under the tongue was edematous, and pushed the tongue up toward the roof of the mouth. She complained of severe pain and swallowed with difficulty. The temperature was 102°, pulse 100, respiration 20.

An incision was made in the midline between the point of the chin and the hyoid bone, through the myelohyoid muscle. Forceps were inserted into the sublingual region. About 2 c.c. of thick creamy pus were discharged. Streptococci were found in the culture of the pus. The wound was irrigated with mercurochrome. One small rubber tube was left in the wound and stitched to the skin. The temperature subsided to 99° after evacuation of the pus. The next day the temperature rose to 101°. The drainage was very slight. The edema in the mouth increased and the abscess was beginning to point under the left side of the tongue. This abscess was incised inside of the mouth and freely drained thick yellow pus. The temperature returned to normal on the third day and the patient was discharged two days afterward in an improved condition. Subsequently she went on to an uneventful recovery.

Case 6.—E. R. C., a male, age 34, six days before entrance into the hospital, complained of pain and swelling under the tongue. These symptoms increased and at the end of three days from the time of onset he was unable to eat and could swallow water with the greatest difficulty.

Examination revealed a marked swelling under the tongue, pushing it against the roof of the mouth. It could not be pushed down for an examination of the hypopharyngeal structures. The fauces, which could be seen by pressing the tongue on the side, showed edema. The voice was quite muffled.

Externally there was a marked swelling immediately under the tongue, from the chin to the hyoid bone. The swelling was very firm, board-like and had no point of fluctuation.

After sterilizing the skin over the involved area and injecting the skin and subcutaneous tissues with 1 per cent novocain, an incision was made in the midline between the chin and hyoid bone, about 2.5 inches deep. Here a pus cavity was entered and about one dram of thick yellow pus escaped. The cavity was irrigated with 2 per cent mercurochrome and then packed with iodoform gauze. The gauze prevented free drainage and after twenty-four hours this was removed and rubber tubing inserted instead. The wound was flushed twice daily with mercurochrome and the patient went on to a rapid recovery, being discharged as cured in one week.

Case 7.—S., a male, age 35, was seen by the writer on the fifth day after a dental scraping of an old tooth socket of a second right lower molar. Two days later a tender swelling appeared under the tongue opposite the scraped tooth socket and continued to grow worse.

Examination revealed a swelling under the right side of the tongue, half the size of an olive, where the mucosa folds over the tongue to the mandible. Redness and swelling of the mucosa extended on that side to the frenum. The tongue was displaced upward and pressure on it was painful. The superficial lymph nodes overlying the submaxillary gland were swollen and very tender. It was evident that there was an abscess inside the floor of the mouth, infection having started from the tooth socket, and the patient was sent to a nearby dentist to have the abscess drained. This the dentist did by probing down from the operated field and enlarging the opening. One dram of thick pus was evacuated and the patient made a rapid recovery.

Southern Medical Journal
JOURNAL OF THE
SOUTHERN MEDICAL ASSOCIATION

Published monthly by the Southern Medical Association, Empire Building, Birmingham, Ala. Annual subscription $4.00. Single copies 35c each.

Entered as second-class matter at the Post Office at Birmingham, Ala., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1106, Act of October 3, 1917, authorized December 20, 1921.

DR. M. Y. DABNEY, Editor
C. P. LORANZ, Secretary-Manager

Vol. XXI MARCH 1928 No. 3

EDITORIAL DEPARTMENT

PARATHYROID HORMONE

In reading the literature of the internal secretions it is necessary for the physician to take exceeding care to separate the firmly founded facts from the imaginings,

" * * * to try
His gain or loss thereby.
Leave the fire ashes. What remains is gold."

The place of the parathyroids as glands of internal secretion was in dispute for many years. They were usually discussed among the ductless glands in medical textbooks; but as late as 1924 Howell[1] wrote:

"Neither on the physiological nor chemical side has any positive evidence been obtained of the presence in this gland of a specific hormone."

The announcement of the obtaining of an active parathyroid extract by Collip,[2] of the University of Alberta, in 1925, established the glands definitely among those which produce an internal secretion. The extract was obtained first by heating the parathyroids of an ox in a 5 per cent solution of hydrochloric acid. As soon as the activity of this preparation was demonstrated, various steps were taken to purify it and ascertain its chemical properties.

It has long been known that complete parathyroidectomy is usually followed by acutely toxic symptoms which develop rapidly, with muscular tetany and death. The blood calcium is low, and calcium salts relieve the symptoms of the tetany. There have been several theories of the function of the parathyroids which were borne out by some experimental evidence: that they affect acid-base regulation, since after parathyroidectomy there is an alkalosis; that they aid in removing toxic guanidine derivatives from the circulation; that they are concerned in the metabolism of calcium; and that deficiency of calcium in the blood, brain and other tissues gives rise to the nervous irritability manifested in tetany. Loeb has shown that calcium salts reduce the irritability of living tissue.[3]

In parathyroidectomized animals, marked changes in dentition and bone repair as well as blood changes indicate the abnormality of calcium metabolism; and in rickets, osteomalacia and osteoporosis, the parathyroids are said to show hyperplasia.[3]

The active parathyroid hormone, when fed or injected into dogs, prevents or controls parathyroid tetany, restoring the calcium content of the blood serum to normal limits. Injection into normal animals causes drowsiness or hypercalcemia, a new clinical entity, with diminution in the alkali reserve and profound changes in the concentrations of the normal blood constituents such as non-protein nitrogen, urea nitrogen, chlorids and phosphorus.

Since Collip's investigations, a number of workers[4] have confirmed the activity of the extract in controlling the symptoms which follow parathyroidectomy, and in producing hypercalcemia in normal animals. Normal calves which receive the extract exhibit drowsiness, are bloated and apathetic, the urine is increased in volume and frequency, and there is a marked rise in the blood calcium, sometimes to as much as 18 to 21 mg. per 100 c.c.

Vitamin D, the fat-soluble anti-rachitic vitamin found in cod liver oil, irradiated cholesterol, and in other natural fats, has also been shown to be necessary for calcium assimilation in the growing animal. Normal bone development is impossible without it. The blood calcium is typically low in rickets. Also the intestinal content of the rachitic animal tends to become alkaline and to return to its normal acidity with anti-rachitic treatment.[5]

1. Howell, W. H.: Textbook of Physiology. Philadelphia: W. B. Saunders Co., 1924.
2. Collip, J. B.: A Parathyroid Hormone and Its Physiological Action. Amer. Jour. Physiol., 72: 182, 1925.
   Ibid. Extraction of a Parathyroid Hormone. Jour. Biol. Chem., 63:395, 1925.
   Collip, J. B.; and Clark, E. P.: Further Studies on Parathyroid Hormone. Ibid., 66:133, 1925.
3. Wells, H. G.: Chemical Pathology. Philadelphia: W. B. Saunders Co., 1925.
4. Robinson, C. S.; Huffman, C. S.; and Bent, K. L.: Effect of Administration of Parathyroid Extract on Normal Calves. Jour. Biol. Chem., 73:477, June 1927.
5. Editorial. Experimental Production of Bladder Stone. JOURNAL, 21:163, Feb. 1928.

Since the profound effect of these two biologicals, vitamin D and parathyroid hormone, is upon calcium metabolism, and apparently alkalosis accompanies a deficiency of either of them, a correlation of their physiological effects and their possible mutual interdependence is indicated. Vitamin D perhaps furnishes a building stone for the formation of the parathyroid hormone. Its absence from the diet may initiate a deficiency of the hormone, which may act directly to bring about the failure of calcium metabolism and the abnormal bone development of rickets. The intestinal alkalosis of rickets might be explained as due to parathyroid deficiency.

Treatment of acute manifestations of rickets in cases of low blood calcium could be undertaken then, not by injections of cod liver oil which have never been beneficial, but by administering small quantities of an active parathyroid extract for its immediate effect, to be followed by dietary correction.

THE GRENZ RAY IN DERMATOLOGY

Radiations of the invisible and imponderable ether bid fair to play an ever more important part in the life of civilized man. It is a part of the magic of the Twentieth Century that long ether waves which cannot be seen or weighed may be measured by their effects, and used in wireless telegraphy to send messages and photographs across the Atlantic. Shorter similar waves in the ether produce heat. They are called the infra red rays. A small group of still shorter waves gives the sensation of light, that is, they are in the range of the visible spectrum and may be seen. Just beyond the range of the visible spectrum, too short to make an image upon the retina but having value in the prevention of rickets, the proper calcification of bones, and in the treatment of various skin conditions, are the ultra-violet rays. Very short penetrating rays are the x-rays used for visualizing the inner parts of the body, that is in roentgenography, and variously as a therapeutic agent. Far shorter and more penetrating than the x-ray are radiations reported by Millikan, said to be due to subatomic changes. These it is hoped in the future may be useful as a source of cheap power for man.

Beginning with waves of the lowest frequency or longest wave length, the wave lengths increase then in this order: radio waves, infra red or heat waves, light, ultra-violet, x-rays, Millikan rays. Of course, there are many gaps of uninvestigated rays between these, whose biological effects are unknown.

The x-ray has been called the most valuable single remedy in dermatology. It has a very marked effect upon living cells, and may cause the disappearance of various benign and malignant growths in the body, as well as of milder skin conditions. The ultra-violet ray has also a curative effect in certain skin conditions. Bucky has produced and investigated the biological effects of rays in between the ultra-violet and the x-ray, but much closer in frequency or wave length to the x-ray, and has named these the grenz or border line rays. He calls them also the infra-roentgen rays. Eller and Bucky[1] have reported their effects upon normal individuals and in various skin diseases. They find the grenz rays to possess many of the healing properties of the x-rays, and to be less dangerous in their results, perhaps because their penetration is slight. Two millimeters of water or tissue absorb more than ninety per cent of the radiation.

If small skin areas of animals or humans are exposed to the grenz ray, there is a rapid drop of twenty to thirty per cent in the leucocyte count within one-half hour, followed by a rapid return to the normal. Erythema after exposure to the grenz rays may be immediate. After x-radiation it is frequently delayed for several weeks, and the sequel may be atrophy or telangiectasia, which were not observed after the grenz ray. Like the ultra-violet ray, the grenz causes pigmentation and its use may be followed by the formation of multiple vesicles, or even bullae. The investigators report the cure of epitheliomas of the basal cell types, of eczema, acne, and improvement of other skin conditions following treatment with the grenz ray.

This is probably a fertile field for investigation. Physicists have produced accurate methods for the production and measurement of various ether disturbances. Since neither biologic action nor penetration of the rays is proportional to their wave length, according to Bucky, the effect and activity of various parts of the spectrum must be studied chiefly empirically by the method of trial and error. And results must be many times confirmed before their final acceptance.

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1. Eller, J. J.; and Bucky, Gustav: The Use of Grenz Rays. Arch. Dermat. and Syph., 17:221, Feb. 1928.

THE KIDNEY OF ARTERIOSCLEROSIS

Beauty may be truth, and truth beauty, admitting Keats. Beauty is also youth and health, with normal arteries; and signs of age, which usually include arteriosclerosis, produce ugliness, even in a roentgenogram of the arterial system of the kidney. Similar photographs of the circulation of the normal kidney present a picture of smoothness, grace and even charm, which a lover of easy lines would enjoy sketching.

Various radiopaque substances have been injected into the kidney for anatomical studies. Graham,[1] of Philadelphia, has employed a method developed elsewhere, involving filling the renal arteries of the human kidney shortly after autopsy with a mass containing bismuth oxychlorid in water with ten per cent acacia. Forty-eight kidneys were thus injected and x-rayed, and very clear visualization of the arterial system was obtained. In the normal kidney the primary division of the renal artery was seen at right angles just within or outside the edge of the cortex at the hilum. The vessels progressed inward showing a gradual diminution in the size of their lumina, with graceful curves and arches, to the glomeruli. Branching occurred at an acute angle, except at the primary division. The interlobular arteries were slender and delicate, closely set and almost parallel, giving a thick uniform cortex. The glomeruli were firm and numerous, grouped evenly about the interlobular arteries. The arterial beds seemed perfectly designed to allow an even slipping of the blood from its source in the larger vessels through the kidney. There were no abrupt changes of direction, dams, strictures, depots in the arteries to delay the flow, back it up, or give irregularity to its current. The photographed curves and arches of the arteries of the normal kidney Graham compares to the architecture of a great elm tree.

The picture of the arteriosclerotic kidney is in effective contrast to the easy mechanism of the normal. There is a general contraction of the entire organ. The branches rise more nearly at a right angle. The curves are angular and abrupt, the vessels tortuous, of uneven caliber with dilatations and constrictions. The interlobar and arcuate arteries are wider, club-like and do not taper gradually. The glomeruli are larger and fewer, clumped about areas of best vascular supply. The blood here must progress laboriously and unevenly through the right angle turns and irregularities of the lumen of the vessels. The picture Graham compares with that of a gnarled, knotty dead oak tree, and the illustrations which he shows suggest his simile.

The kidney studies include a number of photographs of cases of syphilis. Their vascular changes, when present, were found to resemble those of arteriosclerosis, bearing out the theory of Warthin.[2] From studies of the urea nitrogen of the blood of the cases immediately after death, loss of function and arteriosclerosis did not run parallel. Normal values for urea nitrogen were obtained in many cases of arteriosclerosis. Acute nephritis, acute degenerative parenchymatous changes in kidney tissue and passive congestion did not interfere with the injections, or give a distinctive picture. In one case which, before death had shown hematuria, some of the injected opaque fluid escaped into the kidney pelvis, probably through tiny breaks in the severely damaged tissue of the vessel walls.

The method of injection has produced excellent roentgenograms from an anatomic and artistic standpoint. Upon looking at them one can but admire the design of the arterial network, and behind that the intricate wisdom of its creation.

1. Graham, R. S.: Study of the Circulation in the Normal and Pathologic Kidney with Roentgenographic Visualization of the Arterial Tree, Including the Glomeruli. Amer. Jour. Path., 4:17, Jan. 1928.
2. Warthin, J. S.: Syphilis of the Medium and Smaller Arteries. N. Y. Med. Jour., 65:69, 1922. Quoted by 1.

Book Reviews

Laryngeal Tuberculosis. By Frank Robert Spencer, A.B., M.D., F.A.C.S., Assistant Professor of Otolaryngology, Department of Medicine and Surgery, University of Colorado; Otolaryngologist, University of Colorado General Hospital. With a chapter on *Gross Post-Mortem and Microscopic Pathology.* By Philip Hillkowitz, B.S., M.D., Director of Clinical Laboratories of Mercy Hospital, St. Anthony's Hospital and Beth Israel Hospital. 69 pages, illustrated. Philadelphia and London: J. B. Lippincott Co., 1927.

This is an excellent monograph of the tabloid variety (may its tribe increase).

The subject has been dealt with in a brief but eminently practical manner. All superfluities, including case reports, are omitted. The author, assuming on the part of the reader a working knowledge of pathogenesis in general, and of laryngology in particular, after a brief historical review, plunges directly into his subject with the result that his book is filled from cover to cover with practical facts and valuable information covering his subject in all of its aspects.

The illustrations are unusually good, both in drawing and in coloring, showing many types of lesions of the larynx. An extensive bibliography is appended.

Many medical books are issued from the press which do not meet the needs of the profession in that they are more or less a duplication of previous published works. It is certainly not the case in this instance.

Spencer is not so pessimistic as previous writers regarding the outcome of laryngeal tuberculosis. In treatment, he stresses the importance of sanatorium care, rest to the larynx and heliotherapy. He says regarding the electro-cautery which has been strongly advised by St. Clair Thomson, Wood and others: "It is doubtful that any single method of treatment, either medical or surgical, has yielded better results than the cautery."

Mineral Waters of the United States and American Spas. By William Edward Fitch, M.D., Member of the International Society of Medical Hydrology; the American Medical Association; the Medical Association of the Greater City of New York, Etc.; Late Major, Medical Corps of the United States Army; Formerly Lecturer on Surgery, Fordham University School of Medicine; Assistant Gynecologist O.P.D., Presbyterian Hospital; Attending Physician, Vanderbilt Clinic, College Physicians and Surgeons, New York City. 799 pages, illustrated. Philadelphia: Lea & Febiger. Cloth, $8.50.

From the earliest time, of which we have record, mineral waters have been used as remedies for the cure and relief of disease. For the first five centuries following the Christian Era, they were the only remedies employed by the Roman physicians. DeSoto in exploring America sought for a fountain which should give eternal youth. "Henry IV of France three centuries ago issued a royal edict prohibiting any person from making use of a mineral water until his case had been diagnosed and the manner of using the waters prescribed" (p. 20).

Now Fitch says: "The watering places and spas of Europe take an annual toll of at least $100,000,000 from American citizens who are seeking health and recuperation at European spas and resorts. Some of them go to foreign watering places under the delusion that foreign things are better than those at home, and that the more inaccessible and expensive a thing or place is, the better it must be, and others go because the prescribing physician is not creditably informed that in our country we possess every kind and class of mineral water which has made European spas so wealthy and popular. It is a serious reproach on the medical profession that so many thousands, even millions, of patients have spent small fortunes hunting health at European spas when they could have had the same scientific care and more considerate attention at home, and the additional advantage that our American spas and waters are not only equal to any in the world, but that many of them stand in a class to themselves in more than one respect."

His volume endeavors to bring this before the public and to disseminate information upon American spas. It contains a complete study of the content of springs and chemical analyses and discussion of the value of different components, their physiological action and the rationale and technic of hydrotherapy. Five hundred pages is devoted to a description and analysis of the mineral springs in each state taken in alphabetical order.

The volume will give useful information to physicians residing near medicinal springs and should be read by every physician who considers sending a patient to a water cure.

Dental Materia Medica and Therapeutics, with Special Reference to the Rational Application of Remedial Measures to Dental Diseases. By Hermann Prinz, A.M., D.D.S., M.D., Sc.D., Professor of Materia Medica and Therapeutics, the Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania; Member of the U. S. Pharmacopeia and Formulary Committee, American Dental Association. Sixth Edition, enlarged and revised according to the United States Pharmacopeia, Tenth Decennial Revision. 632 pages, illustrated. St. Louis: C. V. Mosby Co. Cloth, $6.00.

The 632 pages of clear type are well illustrated.

The author, "Guided by extensive classroom experience and clinical practice, has made an effort to point out how pharmacological research and clinical observations may be advantageously combined in the rational use of remedial agents for the purpose of favorably influencing disease. The entire subject matter is therefore treated from the standpoint of the pharmaco-therapeutist."

The first part of the book is given over to general therapeutics, prescription writing, weights, measures and tables; thermanology, abbreviations and constituents of organic drugs, copy of the narcotic law, and a table of the average dose of the most important dental drugs.

In the second part, pharmaco-therapeutics, 92 pages is given to antiseptics alone.

The chapter on mouth hygiene and the cause and prevention of dental decay could be profitably read by the laity. The appendix treats of acute poisoning, contains a glossary of therapeutic terms, diagnostic aids, thermometric equivalents and dose table.

This book should be in the hands of every dentist and physician treating diseases of the mouth.

A Textbook of Exodontia, Oral Surgery and Anesthesia. By Leo Winter, D.D.S., Professor of Oral Surgery, New York University College of Dentistry; Oral Surgeon, Flower Hospital; Lecturer in Oral Surgery, New York Homeopathic Medical School; Oral Surgeon, Dental Clinic Association for Improving Condition of Poor; Visiting Dental Surgeon, New York Foundling Hospital; Visiting Dental Surgeon, Harlem Hospital, Bellevue and Allied Hospitals, New York City. 364 pages, with 329 illustrations. St. Louis: C. V. Mosby Co. Cloth, $7.50.

This volume is clearly written in large type. Chapter 1 on general anesthesia embraces the history and use of anesthesia. The book is a casual treatise or review on anesthesia, oral surgery and exodontia. There is a lack of systematic technic, especially in material upon the mandibular third molars, the radiograms of which are made at no definite angle and in some cases do not include all the roots of the tooth to be removed.

We concur with the author's opinion that blood clotting tests should be made of all cases before even small operations.

The book should not be confused with the works on the same subject by Dr. Geo. B. Winter, especially his book on the mandibular third molar, which is just off the press.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D., Professor of Medicine, Graduate School of Medicine, University of Alabama, Birmingham, Ala. Octavo of 783 pages. Philadelphia and London: W. B. Saunders Co., 1927. Cloth, $8.00 net.

This book is a notable contribution to the medical literature of 1927 by an outstanding Southern internist. The volume is most attractive as to size, binding and type.

The author is to be commended upon his rational plan of arrangement, which makes the book of real value as a reference. He has departed from the stilted manner often employed in the compilation of books of this kind, and in each chapter has given valuable information concerning the whys and wherefores and the effects of various foods in different diseases. He has gotten far away from prosy, tiresome reiterations and has produced a book both readable and worth while.

The various aspects of nutrition in health and in disease are lucidly discussed. The first ten chapters deal with metabolism, digestion, nutrition in general, comparative food values, and the normal diet. The last half of the book is devoted to formal diet lists, together with firsthand information as to the dietetic needs and restrictions in the various diseases. The author makes a very clear distinction between the diseases in which diet plays an important part and those in which it has a lesser role.

Dr. McKim Marriott has contributed the chapter on infant feeding and Dr. Barney Brooks has added a discussion on diet in surgical conditions. There is an able discussion on metabolism and diet in gout, together with a group of well planned diet lists. A number of diet lists, far from stereotyped, cover the needs of patients suffering from the many types of kidney disease. The chapter on heart and arterial diseases contains much that is new and helpful, and especially interesting is the author's discussion on myocardial failure, with his suggestions as to the matter of dieting in this condition. One of the book's best chapters is that in which the newer methods of dieting in pernicious anemia are discussed. Here one finds a resume of the work done by the pioneers in this field, to which the author has added from his own extensive experience, practical suggestions, and a personal adaptation of the plan of feeding.

Much originality is displayed in planning the diet lists and menus, and the recipes are very helpful. Under each subject, the author has submitted a series of menus which amply insure variety to the monotony of being "on a diet." His views are neither dogmatic nor arbitrary, and all of his suggestions are backed up by sound reasoning and good judgment.

The book, as a whole, reflects a thorough knowledge of the subject, and much painstaking effort and labor in assembling, developing and arranging the material. There is a logical sequence in the subjects covered, and the tables and charts appended form an attractive feature. This is one of the most complete works on nutrition which has appeared for some time, and already it has taken its place among the really good books on the subject.

The only criticism which might be offered is that it may have a tendency to make some rather lazy in the matter of planning diet lists for patients, there being so many suitable ones conveniently at hand.

A Handbook of Ophthalmology. By Humphry Neame, F.R.C.S., Ophthalmic Surgeon, University College Hospital; Assistant Surgeon, Royal London (Moorfields) Ophthalmic Hospital; Consulting Ophthalmic Surgeon, Dr. Barnardo's Homes, and F. A. Williamson-Noble, F.R.C.S., Assistant Ophthalmic Surgeon, St. Mary's Hospital; Assistant Ophthalmic Surgeon, National Hospital, Queen Square; Assistant Surgeon, Central London Ophthalmic Hospital. 312 pages, with 12 plates, containing 41 colored illustrations and 194 text figures. New York: William Wood & Co., 1927. Cloth, $4.00.

Intended for the undergraduate student and the general practitioner, this handbook fulfills its purpose very well indeed. The technic of routine methods of examination is set forth clearly and in detail. The chapter on ocular injuries, however, is a bit sketchy and perhaps contains some rather risky suggestions for the use of cocain and atropin, in that the percentage of the cocain solution to be used is not definitely stated and there is no warning to the inexperienced of the severe reactions that sometimes follow the use of cocain. Also in the opinion of the reviewer, the indiscriminate use of atropin following slight injuries to the eye is not to be recommended.

The illustrations are very complete and instructive and the products of a London optical house which maintains a drawing department for the use of the ophthalmologist. The book would be better also for the student and general practitioner if more definite information were given on the differential diagnosis of glaucoma.

An Illustrated Guide to the Slit-Lamp. By T. Harrison Butler, M.A., D.M. (Oxon.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Late Radcliffe Traveling Fellow of the University of Oxford; Surgeon to the Birmingham Eye Hospital; Honorary Ophthalmic Surgeon to the Conventry and Warwickshire Hospital and to the Warneford Hospital, Leamington. 144 pages, illustrated. New York: Oxford University Press. Cloth, $9.00.

This is a new book, which contains, along with a suitable account of the earlier observations, descriptions of some important contributions to slit-lamp microscopy made by English observers, notably by Graves and the author himself.

Beginning with a concise description of the Zeiss slit-lamp, which should perhaps be supplemented by a notice of some different features of the Bausch and Lomb instrument, he gives a clear account of the different methods of illumination.

The text is so simple that one who has never seen a slit-lamp can understand every word of it in contrast to Koeppe's more exhaustive work.

The work is founded upon lectures given at the Oxford University Slit-Lamp Course in 1924 and 1925, the Doyne Memorial Lecture of 1924 and the Montgomery Lectures, delivered at Trinity College, Dublin, in April 1926. They have been completely revised with the addition of new material and have been recast in book form. The volume makes no claim to be an ex-

haustive textbook, but must be regarded as an elementary introduction to the technic of the slit-lamp, and a summary of the discoveries that have been made with it during the past decade.

The drawings which illustrate this book are for the most part memory pictures from rough sketches made in the out-patient departments, but some have been carefully drawn from the actual patient. The illustrations have been chosen with the idea of presenting the appearances seen in ordinary clinical work.

In a brief chapter, the value of the slit-lamp in medicolegal cases is discussed. In one case the finding of a second scar in the cornea of an injury case led to the finding of a second piece of steel in the eye, which was evidently received in an injury subsequent to the one under consideration. The author believes that a slit-lamp examination will come to be required in all medicolegal cases.

In a chapter on slit-lamp technic applied to simple apparatus, the author's pocket slit-lamp, which may be used on patients in bed or in the home, is described. With it lesions may be localized on the anterior or posterior surface of the cornea and in the lens, and the depth of the anterior chamber may be gauged.

Practice of Urology and Syphilology. A Surgical Treatise on Genito-Urinary Diseases and Syphilis. By Charles H. Chetwood, M.D., LL.D., F.A.C.S., Attending Urologist and Director of Service, French Hospital; Consulting Surgeon to Bellevue Hospital; Special Consulting Surgeon to Knickerbocker Hospital, St. Johns Hospital (Lond Island City), Nassau Hospital (Mineola), St. Agnes and White Plains Hospital; Member, American Association of Genito-Urinary Surgeons, American Urological Association, L'Association Internationale D'Urologie; Corresponding Member, Deutsche Gesellschaft fur Urologie, Etc. Fourth edition. 879 pages, illustrated. New York: William Wood & Co. Cloth, $9.00.

In this work the essentials of urology and syphilology are well presented. In diagnosis, accuracy is a watchword; and the refinements of diagnostic methods are brought out. In treatment, the value of understanding the lesions and, in a general way, how these lesions respond to effects as produced by various methods of treatment, are given an important place. The idea of individualizing each case prevails throughout the work. There is stressed the value of urethroscopy in cases of chronic urethritis, both as a method of treatment and in determining when a cure has been established. Various transvesical methods of dealing with obstructive lesions in the upper urinary tract are touched upon. Recent developments in drugs, physical agents and operative procedures are considered and their apparent value noted. In the chapter on operative surgery, some of the plates could be more instructive. Careful preoperative and post-operative treatment is taught, and given due credit in the decreasing mortality in urological cases. Regional anesthesia is touched on as of increasing importance in this specialty. In the section on syphilis, the disease, in its various forms, is presented; and the accepted methods of treatment are outlined. Except for occasional typographical errors, the publishers are to be congratulated upon the work.

An Introduction to Clinical Perimetry. By H. M. Traquair, M.D., F.R.C.S. Ed., Assistant Ophthalmic Surgeon, Royal Infirmary, Edinburgh; Ophthalmic Surgeon, Chalmers Hospital, Edinburgh; Oculist to the Edinburgh Poorhouse; Lecturer on Diseases of the Eye, Edinburgh University. 264 pages, with 164 illustrations. St. Louis: C. V. Mosby Co. Cloth, $13.50.

The book consists of two parts. The first, divided into four chapters, deals with the normal field of vision, perimetric instruments, methods of examination, and the physiology of the visual field in relation to clinical perimetry. The eight chapters of the second part take up the pathological field, the interpretation of changes in the visual fields, and the following special relations of the fields: to the choroid and retina, glaucoma, the optic nerve, the chiasm, the suprachiasmal pathway, and functional change in the field of vision.

The illustrations are largely representations of visual fields reproduced from the records of clinical cases. The colored plate is a diagrammatic representation of the visual pathways from the retina into the central nervous system. The illustrations are all admirably executed and judiciously chosen.

In a brief introduction to the American edition, Meyer Wiener, of St. Louis, points out the rapid progress of perimetry in the last twenty years and deplores the fact that many modern skilled ophthalmologists, knowing that it is not possible to practice this specialty without making numerous perimetric measurements, give little or no attention to this very important clinical study. He says, "We have even visited the offices of some of our colleagues where the perimeter lay covered with dust in some out of the way corner, or where there was even the total absence of perimeter or other means of accurately recording the fields of vision. Possibly one reason for this may have been the tendency of some authors to lay too much stress on the exposition of scientific theory, or technical detail.

"One outstanding feature of the author's work is the simplicity of expression in his demonstration of practical methods, their application, and the significance of alterations in the field in relation to diagnosis. The logical sequence of subject arrangement, the treatment of methods and simple style make it easy and interesting reading. None can read or study its chapters without broadening his knowledge of perimetry, and to many it should be the inspiration for increased activity and attention to the study of the visual fields."

Exposures of Long Bones and Other Surgical Methods. By Arnold K. Henry, M.B., B.Ch. (Univ. Dublin), F.R.C.S.I., Chevalier, Legion D'Honneur; Professor of Clinical Surgery, Royal School of Medicine, Cairo; Director of the Surgical Unit, Kasr el Aini Hospital. 80 pages, illustrated. New York: William Wood & Co., 1927.

The original thought which the author has found possible to give an anatomical subject is surprising. This little volume is made a valuable reference work by its excellent display of surgical anatomy and the practicability of the described exposures. Direct routes to, and complete exposures of, the long bones are exactly and carefully charted. The book is in no way a duplication. It is a most useful complement to existing works on surgical anatomy.

In addition to the matter properly included under the title, "Exposures of Long Bones," are given lucid descriptions of new methods of approach to the plantar structures, the vertebral and the left subclavian arteries, the left cervicodorsal ganglion, and the pituitary gland.

Manual of the Diseases of the Eye. By Charles H. May, M.D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926; Consulting Ophthalmologist to the Mount Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Twelfth edition, revised. 445 pages, illustrated. New York: William Wood & Co. Cloth, $4.00.

The twelfth edition of Dr. May's little handbook has been brought to date without increase in size. The book is so well known that an extensive review would be superfluous, the restriction in size has been obtained by omitting excessive detail, extensive discussions and lengthy accounts of theories and rare conditions.

The author has, as in previous editions, endeavored to give the fundamental facts of ophthalmology, always keeping in mind that the book has been written for students and general practitioners.

The illustrations, except the few cuts of instruments, are original and the color plates are so well done that they supply a small atlas of ophthalmology.

Obesity. By Leonard Williams, M.D. 171 pages, illustrated. New York: Oxford University Press. Cloth, $3.35.

This book contains little information of any scientific value. It is made up solely of the author's opinions, a few of which are amusing. As examples:

"It is a matter of common observation that teetotallers tend more than other folk to cultivate corpulence. Whether this is in any degree due to the contentment of self-righteousenss which they usually irradiate, it is difficult to say. . . . Total abstainers are large eaters, and they hold with a fervent and even ferocious faith that a healthy appetite should always be appeased.

"The other fact which in present day circumstances may be held responsible for homosexuality in the adult refers to the nutrition of the infant. . . . Now in these days of bottle-fed babies there is an enormous amount of nutrition in which is appropriate only to the manufacture of homosexuals. . . . It is to my mind almost certain that in some subtle, vitaminoid way the mammary secretion differs according to the sex of the child. . . . It is a significant fact that homosexuals of both sexes are found chiefly, if not exclusively, in the classes in which the mothers for one reason or another do not suckle their babies."

It is remarkably fine phrasing, that "subtle vitaminoid way."

Southern Medical News

ALABAMA

The annual meeting of the Alabama State Medical Association will be held in Birmingham, April 17-20.

Alumni of the School of Medicine, University of Alabama, comprising the School of Medicine formerly located in Mobile, the former Birmingham Medical College and the present School of Medicine at Tuscaloosa, will meet Wednesday evening, April 18, 1928, from 7:00 to 9:00 o'clock, this date being during the annual meeting of the State Medical Association at Birmingham.

Jefferson County Medical Society has elected Dr. O. P. Board, Birmingham, President; Dr. W. B. Hardy, Birmingham, Secretary, reelected.

Mobile County Medical Society has elected Dr. H. P. Cole, Mobile, President; Dr. W. W. Scales, Secretary.

Montgomery County Medical Society has elected Dr. B. Woodfin Cobbs, Montgomery, President; Dr. J. L. Bowman, Montgomery, Secretary.

The Walker County Medical Society gave a banquet on January 13 at Jasper in honor of Dr. J. A. Goodwin, the only surviving charter member of the Society.

A contract has been let for a five-room addition to the Speir's Infirmary, Greenville. This, with other improvements, will cost approximately $12,500.

Deaths

Dr. William Leslie Waites, Tuscaloosa, aged 39, died suddenly December 9 of heart disease.

Dr. Cecil Kelly Maxwell, Alexander City, aged 60, died November 13 in a hospital at Knoxville of pneumonia.

ARKANSAS

The annual meeting of the Arkansas State Medical Society will be held in El Dorado, May 1-3.

Benton County Medical Society has elected Dr. J. L. Clemmer, Gentry, President; Dr. Guy Hodges, Rogers, Vice-President; Dr. C. S. Wilson, Siloam Springs, Secretary-Treasurer.

Faulkner County Medical Society has elected Dr. Robert L. Dawson, Wooster, President; Dr. Marcus T. Smith, Conway, Vice-President; Dr. Joseph S. Westerfield, Conway, Secretary-Treasurer.

Garland County-Hot Springs Medical Society has elected Dr. O. H. King, President; Dr. H. King Wade, Vice-President; Dr. Gaston Hebert, Secretary-Treasurer.

Howard-Pike County Medical Society has elected Dr. D. A. Hutchinson, Nashville, President; Dr. W. M. Gibson, Nashville, Vice-President; Dr. W. Ridley Lee, Mineral Springs, Secretary-Treasurer.

Lawrence County Medical Society has elected Dr. Wm. Johnston, Hardy, President; Dr. G. A. Warren, Black Rock, Vice-President; Dr. W. W. Hatcher, Imboden, Secretary-Treasurer.

Mississippi County Medical Society has elected Dr. C. E. Wilson, Blytheville, President; Dr. R. L. Johnson, Bassett, Vice-President; Dr. F. D. Smith, Blytheville, reelected Secretary-Treasurer.

Pulaski County Medical Society has elected Dr. R. J. Calcot, President; Dr. Homer Scott, Vice-President; Dr. Geo. H. Lewis, Secretary; Dr. Wm. R. Bathurst, Treasurer, all of Little Rock.

Sebastian County Medical Society has elected Dr. D. W. Goldstein, Fort Smith, President; Dr. C. S. Means, Fort Smith, Vice-President; Dr. C. S. Bungart, Fort Smith, Secretary; Dr. W. R. Brooksher, Fort Smith, Treasurer.

Woodruff County Medical Society has elected Dr. M. A. Porter, Hunter, President; Dr. J. W. Morris, McCrory, Vice-President; Dr. L. E. Biles, Augusta, Secretary-Treasurer.

Deaths

Dr. Charles V. Scott, Little Rock, aged 60, died January 8.

DISTRICT OF COLUMBIA

The Medical Society of the District of Columbia, Washington, has elected Dr. Oscar Benwood Hunter, President; Dr. Robert Y. Sullivan and Dr. Louise Taylor Jones, Vice-Presidents; Dr. Coursen B. Conklin, reelected Secretary.

Plans have been announced for the erection of a modern eight story office building for the use of physicians and dentists in Washington. The building will be called the Columbia Medical Building, and is estimated to cost $750,000.

Carl W. Larson, Ph.D., Chief of the U. S. Bureau of Dairy Industry since 1924, has resigned and accepted a position of managing director of the National Dairy Council.

Dr. Edgar A. Bocock has been appointed Superintendent of the Gallinger Municipal Hospital, Washington. He succeeds Major E. W. Patterson.

Dr. Earle Standler, Washington, and Miss Mary Walker, Cleburne, Texas, were married December 28.

Deaths

Dr. James Denver Glennan, Brigadier General, U. S. Army, retired, Washington, aged 65, died December 24, at the Walter Reed General Hospital of pernicious anemia.

Dr. William Francis Walter, Washington, aged 56, died in December at the Providence Hospital of gangrene and diabetes mellitus.

Dr. Wilson Prestman Malone, Washington, aged 64, died December 18 of arteriosclerosis.

FLORIDA

The annual meeting of the Florida State Medical Association will be held in Tampa, April 3-4.

Dade County Medical Society has elected Dr. Walter C. Jones, Miami, President; Dr. E. H. Adkins, Miami Beach, Vice-President; Dr. R. M. Harris, Miami, Secretary; Dr. C. E. Dunaway, Miami, Treasurer.

DeSoto-Hardee-Highlands County Medical Society has elected Dr. Howard V. Weems, Sebring, President; Dr. A. A. Pucher, Wauchula, Vice-President; Dr. C. H. Kirkpatrick, Arcadia, Secretary-Treasurer.

Escambia County Medical Society has elected Dr. C. W. D'Alemberte, Pensacola, President; Dr. W. A. J. Pollock, Pensacola, Vice-President; Dr. J. M. Hoffman, Pensacola, Secretary-Treasurer.

Hillsboro County Medical Society has elected Dr. R. C. Hubbard, Tampa, President; Dr. A. R. Beyer, Tampa, Vice-President; Dr. Frank T. Barker, Tampa, Secretary-Treasurer.

Lake County Medical Society has elected Dr. M. M. Hannum, Eustis, President; Dr. H. K. Morrison, Leesburg, Vice-President; Dr. W. L. Ashton, Umatilla, Secretary-Treasurer.

Palm Beach County Medical Society has elected Dr. J. A. Powell, President; Dr. W. W. George, Vice-President; Dr. S. W. Fleming, Secretary; Dr. Lloyd Netto, Treasurer.

Suwanee River Medical Society has elected Dr. T. S. Anderson, Live Oak, President; Dr. George Davis, Madison, Dr. Dan N. Cone, White Springs, and Dr. Robert B. Harkness, Lake City, Vice-Presidents; Dr. L. J. Arnold, Lake City, Secretary-Treasurer.

Volusia County Medical Society has elected Dr. L. W. Glatzua, DeLand, President; Dr. J. B. Davis, Daytona Beach, Vice-President; Dr. R. L. Miller, Daytona Beach, Secretary.

The staff of the Pensacola Hospital has elected Dr. C. Hutchinson, President; Dr. W. C. Payne, Vice-President; Dr. C. J. Heinberg, Secretary.

Dr. John S. Helms has closed the Bayside Hospital since the opening of Tampa's new Municipal Hospital.

St. Vincent's Hospital, Jacksonville, will be opened soon. It was built at a cost of more than $1,000,000 and has a capacity of 200 beds.

Dr. Clyde C. Bohannon, Daytona Beach, has been elected Chief of the Staff of the new Halifax District Public Hospital which will open soon.

Dr. Edmund H. Teeter, Jacksonville, has been elected Commander of the Edward C. DeSaussure Post No. 9 of the American Legion.

Dr. James B. Griffin, Superintendent of the Flagler Hospital, St. Augustine, has resigned and will return to private practice.

Dr. R. D. Ferguson, Titusville, has been appointed Physician at the Prison Farm, Raiford. He succeeds Dr. E. R. Marshburn, who has moved to Marianna.

Dr. Henry Hanson has been appointed Field Officer for the Florida State Board of Health with headquarters at DeFuniak Springs.

Dr. Donald S. Fraser has resigned as Field Medical Officer for the State Board of Health.

Dr. W. W. Hardman, formerly of the Duval County Hospital, Jacksonville, has moved to Titusville, where he has taken over the practice of Dr. R. D. Ferguson, who has been appointed to the State Prison Farm.

Dr. James Q. Folmor was recently appointed Superintendent of the State Hospital, Chattahoochee.

Dr. T. D. Gunter and Miss Ora B. Davis, both of West Palm Beach, were married October 13.

Dr. Jack Halton and Miss Winifred Snell, both of Sarasota, were married in November.

Dr. R. D. Ferguson, Raiford, and Miss Louise Rex Lockwood, R.N., Norfolk, Virginia, were married in St. Augustine, November 9.

Dr. Richard Spencer Gill, West Palm Beach, and Miss Willy Ruth Bowden, Columbus, Georgia, were married December 12.

Deaths

Dr. S. S. Bridges, River Junction, aged 42, died October 25 after a few hours' illness.

Dr. D. H. Simmons, DeFuniak Springs, aged 66, died December 16.

Dr. William Fletcher Rosborough, Micanopy, aged 56, died December 21.

GEORGIA

The annual meeting of the State Medical Association of Georgia will be held in Savannah, May 8-11.

Ben Hill County Medical Society has elected Dr. J. L. Frazer, Fitzgerald, President; Dr. Frank Ward, Fitzgerald, Vice-President; Dr. L. S. Osborne, Fitzgerald, Secretary-Treasurer.

Bibb County Medical Society has elected Dr. Walter E. Mobley, Macon, President; Dr. R. W. Richardson, Macon, Secretary-Treasurer.

Chatham County Medical Society has elected Dr. G. H. Lang, Savannah, President; Dr. A. A. Morrison, Savannah, Secretary.

Dougherty County Medical Society has elected Dr. A. S. Bacon, Albany, President; Dr. F. K. Neil, Albany, Vice-President; Dr. I. M. Lucas, Albany, Secretary-Treasurer.

Fulton County Medical Society has elected Dr. E. C. Davis, Atlanta, President; Dr. Howard Hailey, Atlanta, Secretary.

Habersham County Medical Society has elected Dr. J. H. McClure, Cornelia, President; Dr. W. H. Garrison, Clarkesville, Vice-President; Dr. R. B. Lamb, Demorest, Secretary-Treasurer.

Hall County Medical Society has elected Dr. J. K. Burns, Gainesville, President; Dr. H. K. Phillips,

(Continued on page 34)

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El Paso is as far west of the eastern boundary of Texas as Chicago is west of New York. It is some 200 miles *west* of the general *western* boundary of Texas. It is at the center, east and west, of the great southwestern plateau that rises west of Fort Worth and sinks again at the Colorado River, on the Arizona-California boundary.

El Paso is 3,762 feet above sea level, at the southern tip of the Rocky Mountains in the United States. It is surrounded by hundreds of miles of desert. Here the tuberculosis patient finds the dry desert climate, tempered by moderate altitude, at its best.

There are 331 sunshiny days a year in El Paso. Rainfall is less than 10 inches annually. Mean temperature is 63.5 degrees. Humidity is as low as for any weather station of record. Winters are mild and sunny. Summers are tempered by cooling showers.

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Name.....

Address.....

(Continued from page 252)

Helen, Vice-President; Dr. Pratt Cheek, Gainesville, Secretary-Treasurer.

Richmond County Medical Society has elected Dr. Paul Eaton, Augusta, President; Dr. Irvine Phinizy, Augusta, Secretary.

Stewart-Webster Counties Medical Society has elected Dr. R. L. Grier, Lumpkin, President; Dr. C. E. Pickett, Richland, Vice-President; Dr. J. M. Kenyon, Richland, Secretary-Treasurer.

Sumter County Medical Society has elected Dr. Herschel A. Smith, Americus, President; Dr. J. C. Logan, Plains, Vice-President; Dr. Henry A. Smith, Americus, Secretary-Treasurer.

Tift County Medical Society has elected Dr. D. B. Harrell, Tifton, President; Dr. J. M. Price, Tifton, Vice-President; Dr. C. S. Pittman, Tifton, Secretary-Treasurer.

Turner County Medical Society has elected Dr. R. D. Rawlings, Rebecca, President; Dr. J. F. Covington, Ashburn, Vice-President; Dr. J. H. Baxter, Ashburn, Secretary-Treasurer.

Ware County Medical Society has elected Dr. C. M. Stephens, Waycross, President; Dr. H. G. Huey, Homerville, Vice-President; Dr. Kenneth McCullough, Waycross, Secretary-Treasurer.

The eighth annual meeting of the Surgical Association of the Atlanta & West Point Railroad Company, the Western Railway of Alabama, Georgia Railroad and the Elberton & Eastern Railroad was held in Atlanta, February 9.

The officers of the Staff of the white unit of Grady Hospital, Atlanta, are Dr. T. C. Davison, President; Dr. C. C. Aven, Vice-President; Dr. M. M. Burns, Secretary.

The officers of the Staff of the Emory University Division of Grady Hospital, Atlanta, are Dr. Allen Bunce, President; Dr. W. A. Selman, Vice-President; Dr. W. A. Smith, Secretary.

The officers of the Staff of Wesley Memorial Hospital, Atlanta, are Dr. C. E. Waits, President; Dr. Glenville Giddings, Vice-President; Dr. W. W. Anderson, Secretary.

The officers of the Staff of St. Joseph's Infirmary, Atlanta, are Dr. Geo. C. Mizell, President; Dr. LeRoy Childs, Vice-President; Dr. Leo P. Daly, Secretary.

The officers of the Davis-Fischer Sanatorium Staff, Atlanta, are Dr. W. M. Dunn, President; Dr. E. L. Daniel, Vice-President; Dr. M. T. Harrison, Secretary.

Dr. C. W. Powell has opened the W. A. Harris Memorial Hospital, Atlanta. This hospital is for colored patients.

Dr. W. A. Gardner has leased the Southeastern Sanatorium to Dr. Ragsdale and has purchased the J. Cheston King Sanatorium at Stone Mountain, and will be in active charge.

Dr. C. E. Boynton is in charge of the Good Samaritan Clinic, Atlanta.

Dr. J. R. Dykes, Marshallville, was recently elected full time Health Officer for Grady County.

Deaths

Dr. Giles S. Kelly, Lawrenceville, aged 64, died December 11.

Dr. Peyton H. Keaton, Damascus, aged 64, died December 7.

Dr. George L. Alexander, Forsyth, aged 55, died December 9 of heart disease.

Dr. John Franklin Lemmon, Mount Airy, aged 73, died October 18 of carcinoma of the esophagus.

Dr. Thomas N. Berry, Blairsville, aged 58, died December 11 of nephritis.

Dr. Charles E. Murphey, Atlanta, aged 70, died December 21 of cerebral hemorrhage and uremia.

Dr. Henry S. Maloy, Milan, aged 42, died November 6.

Dr. J. A. George, Savannah, aged 60, died December 9.

Dr. S. A. Murray, Tazewell, aged 72, died December 2.

Dr. J. J. Foster, College Park, aged 66, died in Cordele January 2.

KENTUCKY

Jefferson County Medical Society has elected Dr. W. Hamilton Long, Louisville, President; Dr. Frank M. Stites, Louisville, Secretary.

Plans are being worked out for a modern fireproof hospital of fifty beds for Pineville.

Nina M. Denver, formerly Assistant Superintendent of the Methodist Episcopal Deaconness Hospital, Louisville, is now Superintendent.

(Continued on page 36)

Months Before

The x-ray chest examination has frequently indicated tuberculosis months before sputum tests were positive —months before the stethoscope gave a definite diagnosis.

The x-ray examination of the heart frequently indicates aneurisms, aortic enlargements and other cardiac impairments months before trouble is suspected.

X-ray gall bladder examinations indicate pathologic conditions when no other method is of definite value.

Intestinal complications are clearly depicted by x-ray examinations which the most skilled specialist could only suspect without this aid.

These are but a few chosen from a long list of diseases which the x-ray examination is admittedly capable of diagnosing months before a clear cut diagnosis can be made without its help. Such a method deserves universal application routinely. If you are not equipped to make x-ray examinations refer your patients to a competent roentgenologist. The coupon below is for your convenience in asking for an interesting booklet on x-rays.

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Yet the difference between Tillyer lenses and ordinary lenses is not entirely in their margins. Because of a higher polish, Tillyer lenses give a cleaner, brighter definition through the center and, because of greater accuracy, *hold this definition over the entire surface of the lens.* No visual strain, and greater eye-comfort, is the obvious result.

Bifocal wearers make constant use of the margins of their lenses. Tillyer bifocals will greatly benefit them.

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SOUTHBRIDGE, MASS.

(Continued from page 34)

Dr. William Thomas Little, Calvert City, and Miss Virginia Vales, Smithland, were married November 2.

Deaths

Dr. William Robert Heflin, Newport, aged 57, died December 26 of pneumonia.

Dr. Joseph Charles Meriwether, Trenton, aged 65, was found dead in bed December 19 as the result of a cerebral hemorrhage.

LOUISIANA

The annual meeting of the Louisiana State Medical Society will be held in Baton Rouge, April 10-12.

Iberia Parish Medical Society has elected Dr. P. A. LeBourgeois, Jeanerette, President; Dr. P. A. Boykin, Jeanerette, Vice-President; Dr. W. F. Carstens, New Iberia, Secretary-Treasurer.

Orleans Parish Medical Society has elected Dr. J. Birney Guthrie, President; Dr. C. Grenes Cole, Dr. Wm. D. Phillips and Dr. Frederick L. Fenno, Vice-Presidents; Dr. H. Theodore Simon, Secretary; Dr. John A. Lanford, Treasurer, all of New Orleans.

Shreveport Medical Society has elected Dr. M. S. Picard, President; Dr. O. C. Rigby and Dr. T. J. Fleming, Vice-Presidents; Dr. M. S. LeDoux, Secretary; Dr. J. R. Stamper, Treasurer, all of Shreveport.

St. Tammany Parish Medical Society has elected Dr. F. F. Young, Covington, President; Dr. W. L. Stevenson, Covington, Vice-President; Dr. Roland Young, Covington, Secretary-Treasurer.

The twenty-third annual meeting of the Tri-State Medical Society (Louisiana, Arkansas, Texas) was held at Shreveport, January 18-19.

Contracts have been let for the construction of the first unit of the new Presbyterian Hospital, New Orleans. It will be five stories and will be known as the James M. Batchelor Building in honor of Dr. Batchelor, Surgeon-in-Chief of the Hospital. The first unit will be the medical and surgical building and upon its completion, construction of a nurses' home and a ten story administration building will begin.

The Orleans Parish Medical Society sponsored a homecoming dinner, New Orleans, December 20, in honor of Dr. Rudolph Matas, Emeritus Professor of Surgery, Tulane University of Louisiana School of Medicine, New Orleans. It was announced at the dinner by the Dean of the Medical School, Dr. Charles C. Bass, that the Tulane Board had drafted the guest of honor to continue to serve in the Medical School as Professor Emeritus.

Dr. H. W. Knight has been appointed Superintendent of the Flint-Goodridge Hospital, New Orleans.

Dr. Robert F. DeRouen, Clarence, has been elected President of the Eighth District Medical Society.

Dr. Robert H. Bryant, Pineville, has been elected President of the Rapides Parish Medical Society.

Dr. Robert W. Faulk, Monroe, has been elected President of the Ouachita Parish Medical Society.

Deaths

Dr. Boyd L. Hodge, Calhoun, aged 63, died December 21 at the Riverside Sanatorium, Monroe, of cerebral softening.

Dr. Paul Crutsinger, Minden, aged 37, died December 6.

Dr. George H. Jones, Lutcher, aged 67, died December 18.

MARYLAND

The annual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Baltimore, April 24-26.

Baltimore City Medical Society has elected Dr. J. A. Chatard, President; Dr. J. C. Lumpkin, Vice-President; Dr. E. P. Smith, Secretary; Dr. C. E. Brack, Treasurer.

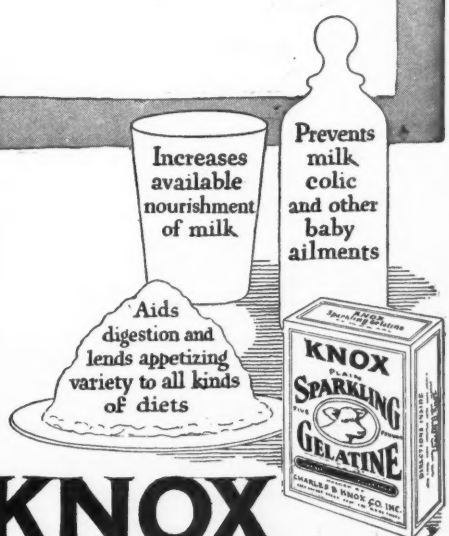
Baltimore County Medical Society has elected Dr. Wm. M. Carmine, St. Helena, President; Dr. S. R. Clarke, Roland Park, Vice-President; Dr. A. M. Bacon, Parkville, Secretary-Treasurer.

Carolina County Medical Society has elected Dr. H. W. B. Rowe, Hillsboro, President; Dr. E. P. Knotts, Denton, Vice-President; Dr. W. W. Goldsborough, Greensboro, Secretary-Treasurer.

Carroll County Medical Society has elected Dr. M. D. Norris, Eldersburg, President; Dr. J. Sterling Geatty, New Windsor, Vice-President; Dr. James T. Marsh, New Windsor, Secretary-Treasurer.

(Continued on page 38)

When a mother brings you an underweight, undernourished child....the addition of Knox *Sparkling* Gelatine to its milk will prove helpful in correcting the condition!



DO you know the facts about *gelatine-and-milk?*—how Knox Gelatine, when dissolved and added to milk, aids digestion and increases the available nourishment!

—Do you know the facts about *gelatine-and-vegetables or gelatine-and-fruit?*—that the child finds it more appetizing to eat plenty of fruits and vegetables when they are combined in delicious ways with Knox Sparkling Gelatine!

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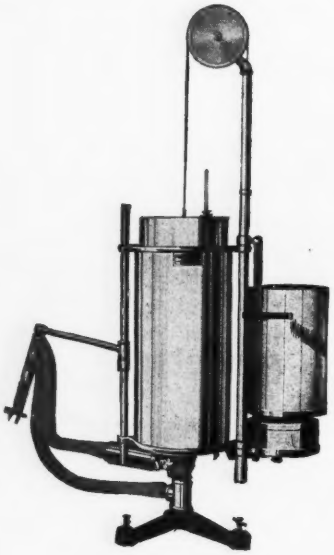

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(Continued from page 36)

Dorchester County Medical Society has elected Dr. Edward Lamkin, Vienna, President; Dr. Thos. Lynch Coll, Cambridge, Vice-President; Dr. Edgar A. Jones, Cambridge, Secretary-Treasurer.

Frederick County Medical Society has elected Dr. J. O. Hendrix, Frederick, President; Dr. W. Hayes Brown, Jefferson, and Dr. Frank H. Hedges, Frederick, Vice-Presidents; Dr. Frank Worthington, Frederick, Secretary; Dr. William Crawford Johnson, Frederick, Treasurer.

Montgomery County Medical Society has elected Dr. G. V. Hartley, Rockville, President; Dr. Thomas K. Conard, Chevy Chase, Vice-President; Dr. James W. Bird, Sandy Springs, Secretary-Treasurer.

Talbot County Medical Society has elected Dr. J. B. Zerbee, Easton, President; Dr. J. B. Merritt, III, Easton, and Dr. W. T. Hammond, Easton, Vice-Presidents; Dr. Joseph A. Ross, Trappe, Secretary-Treasurer.

A campaign has been opened to raise $150,000 for a building fund for the Provident Hospital and Free Dispensary for Negroes, Baltimore. John D. Rockefeller, Jr., contributed $25,000 to the fund and an additional $30,000 toward the maintenance of the hospital.

The Chemical Foundation has given $195,000 to Johns Hopkins University School of Hygiene and Public Health for an exhaustive study of the origin, nature and possible cure of the common cold. It is known as the John J. Abel Fund for Research on the Common Cold, in honor of the present incumbent of the Chair of Pharmacology at Johns Hopkins University School of Medicine, Baltimore. It will provide $25,000 for the first year of the study, $35,000 for the second, and $45,000 for each of the third, fourth and fifth years. The research fund will be administered by a faculty committee composed of the following: Dr. Lewis H. Weed, Dean and Professor of Anatomy of the School of Medicine, Chairman; Dr. William H. Howell, Director, School of Hygiene and Public Health; Dr. Warfield T. Longcope, Professor of Medicine; Dr. Carroll G. Bull, Professor of Immunology, School of Hygiene and Public Health; Dr. Wade H. Frost, Professor and Head of the Department of Epidemiology, School of Hygiene and Public Health; Dr. Samuel J. Crowe, Clinical Professor of Laryngology and Otology, and Lawrence H. Baker, Ph.D., Executive Secretary of the School of Medicine.

An addition to cost $500,000 is to be erected to the Union Memorial Hospital, Baltimore, from funds donated by Mr. Frederick Bauernschmidt. One hundred and twenty-eight additional beds will be provided, and they will be for persons of moderate means.

Community health centers for colored people are gradually being established throughout the State, the latest being at Turner's Station in Baltimore County. One of the best equipped of these is at Frederick, where a room in the basement of a colored church has been set aside for such health work as weekly conference, the exhibition of posters and lectures. In several counties colored public health nurses are employed among the colored people.

Dr. Frederic V. Beitler, for seventeen years Chief of the Bureau of Vital Statistics, has resigned. He declined the position on full time because the salary was insufficient to justify his retiring from active practice.

Dr. J. Percy Wade, Superintendent of the Spring Grove State Hospital, Catonsville, has resigned, and Dr. Robert E. Garrett has been appointed to succeed him. Dr. Garrett has been connected with the Hospital for twenty-eight years as First Assistant Physician.

Dr. John Randolph Winslow, Baltimore, has been appointed Historian to the Medical and Chirurgical Faculty of Maryland.

Dr. Dean DeWitt Lewis, Baltimore, and Miss Norene Kinney, East Chicago, Indiana, were married at Girard, Ohio, December 26.

Deaths

Dr. Edgar Randolph Strobel, Baltimore, aged 56, died December 27.

Dr. Paul Reed Rockwood, Baltimore, aged 31, died December 28.

Dr. Francis Merron Munson, La Plata, aged 49, died December 10 of injuries received when the automobile in which he was driving overturned.

Dr. James Walker Humrichouse, Hagerstown, aged 78, died in December of heart disease.

(Continued on page 40)

HOW MANY TIMES A DAY DO YOU WASH YOUR HANDS?

PATCH'S NEPTO LOTION

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Surgeons, Physicians and Nurses are obliged to wash their hands very frequently. Mothers, too, who have children to care for or housework to do, must have their hands frequently in water.

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NEPTO LOTION is different from other lotions. It is made with a base of Irish Moss, combined with glycerin and alcohol in just the right proportions to keep the skin soft and smooth. It relieves chapping and protects the soft texture of the skin.

Just a few drops of NEPTO LOTION, applied right after drying the hands, will work wonders! You'll be surprised how soft and pliable your skin will keep.

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(Continued from page 38)

Dr. Emile Duskes, Baltimore, aged 27, died September 11.

Dr. Thomas Edward Sears, Baltimore, aged 53, died in December of heart disease.

Dr. George F. Chambers, Lusby, aged 64, died recently of cerebral hemorrhage.

Dr. John Oliver Hendrix, Frederick, aged 58, died December 23 of uremia.

MISSISSIPPI

The annual meeting of the Mississippi State Medical Association will be held in Meridian, May 8-10.

The Central Medical Society has elected Dr. J. P. Wall, Jackson, President; Dr. W. L. Britt, Jackson, Dr. O. H. Swayze, Yazoo City, Dr. J. H. Howell, Canton, Dr. M. L. Flint, D'Lo, Dr. W. H. Davis, Pelahatchie, and Dr. W. A. Jones, Morton, Vice-Presidents; Dr. R. W. Hall, Jackson, Secretary.

DeSoto County Medical Society has elected Dr. W. S. Weissinger, Hernando, President; Dr. A. L. Emerson, Hernando, Vice-President; Dr. L. L. Minor, Secretary-Treasurer.

East Mississippi Medical Society has elected Dr. S. H. Hairston, Meridian, President; Dr. H. Lowry Rush, Meridian, Secretary.

Northeast Mississippi Thirteen Counties Medical Society has elected Dr. Hunter L. Scales, Starkville, President; Dr. W. A. Johns, Corinth, Dr. E. B. Young, Vardaman, Dr. T. D. Houston, Woodland, Dr. S. R. Deans, West Point, Dr. S. L. Nabors, Nettleton, Dr. R. C. Berry, Tupelo, Dr. J. W. Lipscomb, Columbus, Dr. C. E. Boyd, Amory, Dr. A. R. Sanders, Brooksville, Dr. O. W. Roberts, Sturgis, Dr. R. P. Donaldson, Pontotoc, Dr. L. L. McDougal, Booneville, and Dr. N. C. Waldrep, Tishomingo, Vice-Presidents; Dr. James M. Acker, Jr., Aberdeen, Secretary.

Tri-County Medical Society has elected Dr. E. B. French, McComb, President; Dr. R. E. Higdon, Brookhaven, Dr. J. D. Dampeer, Crystal Springs, Dr. M. D. Ratcliff, McComb, Dr. J. E. Brumfield, Tylertown, and Dr. B. S. Waller, Silver Creek, Vice-Presidents; Dr. J. R. Markette, Brookhaven, Secretary-Treasurer.

Contracts have been let for the construction of eight buildings for the new hospital for the insane at Whitfield. This will cost approximately $500,000.

A $20,000 budget has been arranged for a full-time health department for Washington County, Greenville. The State Board of Health, Rockefeller Foundation and the U. S. Public Health Service will cooperate with the county and city authorities.

Deaths

Dr. Oliver A. Lomax, Waynesboro, aged 59, died August 28 of heart disease.

Dr. George King Pratt, Pass Christian, aged 78, died November 29 of carcinoma of the stomach.

MISSOURI

The annual meeting of the Missouri State Medical Association will be held in Columbia, May 14-17.

Buchanan County Medical Society has elected Dr. E. A. Gummig, St. Joseph, President; Dr. L. H. Fuson, St. Joseph, and Dr. Charles Greenberg, St. Joseph, Vice-Presidents; Dr. T. L. Howden, St. Joseph, Secretary; Dr. J. M. Bell, St. Joseph, Treasurer.

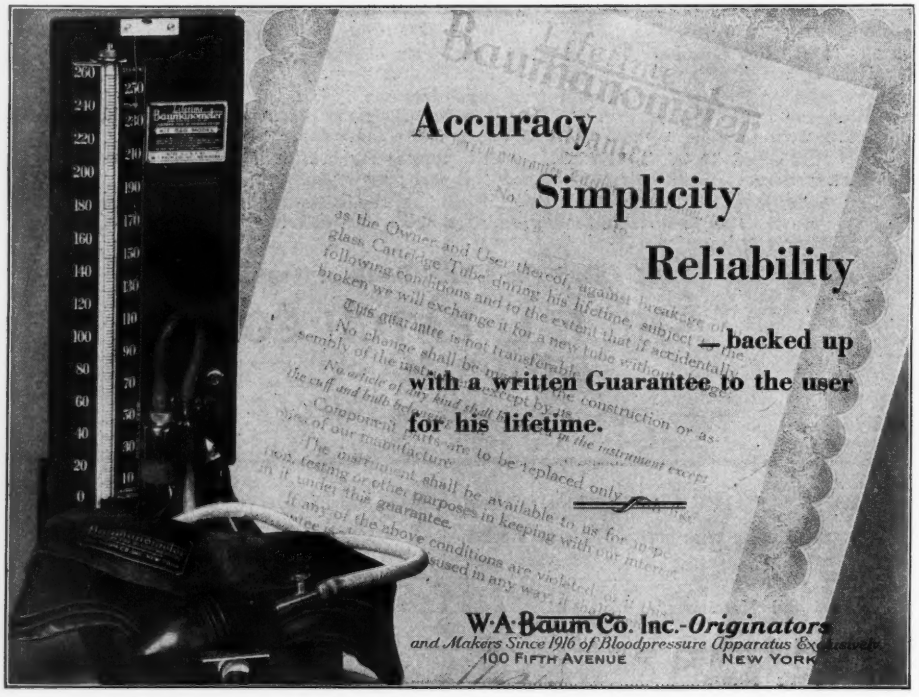
Cape Girardeau County Medical Society has elected Dr. W. W. Ford, Gordonville, President; Dr. A. E. Dalton, Cape Girardeau, Vice-President; Dr. A. M. Murphy, Cape Girardeau, Secretary; Dr. L. L. Seabaugh, Cape Girardeau, Treasurer.

Grundy County Medical Society has elected Dr. Deborah Doan Phillips, Trenton, President; Dr. Jesse F. Fair, Trenton, Vice-President; Dr. E. A. Duffy, Trenton, Secretary-Treasurer.

Jackson County Medical Society has elected Dr. Ralph W. Holbrook, Kansas City, President; Dr. J. Milton Singleton, Kansas City, Secretary; Dr. J. T. Pittman, Kansas City, Treasurer.

Jasper County Medical Society has elected Dr. John L. Sims, Joplin, President; Dr. E. D. Hatcher, Car-

(Continued on page 42)



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"—and these signs of Spring should remind us that early Spring and Summer Hay Fever will soon start recurring among many of your patients, Doctor. This is just the right time for prophylaxis."

PRE-SEASONAL desensitization of hay fever patients, it has been found, is much more successful than attempts to relieve the condition after the symptoms have developed.

Since treatments should commence from five to six weeks before the expected onset, it is advisable to immunize your patients at this time.

POLLEN ALLERGEN SOLUTIONS SQUIBB are used for the prevention and treatment of Hay Fever.

SQUIBB'S DIAGNOSTIC POLLEN ALLERGEN SOLUTIONS afford the means of determining the offending pollens.

The prophylaxis consists of the injection of graduated doses of sterile glycerol solutions of the pollen proteins. Complete sets of these graduated doses and 5 cc. vials are distributed as Pollen Allergen Solutions Squibb.

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SOLARGENTUM SQUIBB contains approximately 20 per cent. of pure silver in colloidal form. Non-hygroscopic under ordinary conditions; non-irritating in any concentration; stable in solution.

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MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

(Continued from page 40)

thage, Vice-President; Dr. M. C. Shelton, Joplin, Secretary-Treasurer.

Linn County Medical Society has elected Dr. J. L. Cantwell, Bucklin, President; Dr. E. D. Standly, Brookfield, Vice-President; Dr. Ola Putman, Marceline, Secretary; Dr. F. W. Burke, Laclede, Treasurer.

The Lutheran Hospital, St. Louis, has named its roentgen-ray laboratory in honor of Dr. Edward H. Kessler, in recognition of his many years of service.

The new St. Louis Maternity Hospital of the Washington University, St. Louis, was recently opened. It has 104 beds, sixty of which are free or part pay. It was erected and equipped at a cost of $850,000.

Dr. James F. Bulkley has resigned as President of the Board of Education of La Plata.

Theresa M. Norberg has assumed the Superintendency of the new Southeast Missouri Hospital, Cape Girardeau.

Dr. Carlie Bell Souter Smith, Springfield, has sailed for India to pursue studies in cataract work at the Civic Hospital, Moga, about 200 miles from Delhi.

Dr. Paul L. Jones, Elvins, and Miss Grace M. Harris, Denver, Colorado, were married December 28.

Deaths

Dr. George G. Levick, Moberly, aged 72, died December 15 at the Woodland Hospital of carcinoma of the prostate.

Dr. Edward Watts Saunders, St. Louis, aged 73, died December 19 of cerebral thrombosis.

Dr. Charles Albert Gibbs, Vienna, aged 60, died December 25 at St. Mary's Hospital, Jefferson City.

Dr. Isaac H. Bird, St. Louis, aged 73, died December 24 at St. Mary's Hospital of heart disease.

Dr. William Franklin Mitchell, Maplewood, aged 39, died November 29 at the City Isolation Hospital, St. Louis, of septicemia and scarlet fever.

Dr. Julius Backy, St. Louis, aged 68, died December 9 of heart disease.

Dr. Alonzo Wellington Benton, Neosho, aged 73, died December 6 at St. John's Hospital, Joplin.

Dr. John S. Kimbrough, St. Louis, aged 61, died suddenly December 17 of heart disease.

Dr. Howard Lindsay, St. Louis, aged 53, died December 3 at the Christian Hospital of heart disease.

Dr. Daniel W. Martin, of Bethany, aged 87, died October 14.

Dr. Lee Roy Williams, St. Louis, aged 51, died December 26 of heart disease.

Dr. George Osborne, Centerview, aged 53, died suddenly November 11.

Dr. John William McClellan, St. Louis, aged 57, died December 19 of heart disease.

NORTH CAROLINA

The Clinico Pathological Society met in Charlotte, December 12. Dr. Claude B. Squires is President; Dr. A. A. Barron, Vice-President; Dr. J. Rush Shull, Secretary-Treasurer.

Madison County Medical Society has elected Dr. Eva Locke, White Rock, President; Dr. Harry B. Ditmore, Marshall, Secretary.

Robeson County Medical Society has elected Dr. J. A. Martin, Lumberton, President; Dr. C. T. Johnson, Red Springs, Vice-President; Dr. J. N. Britt, Lumberton, Secretary-Treasurer.

At a meeting of the Cumberland County Medical Society held at Fayetteville, January 19, Dr. O. L. MacFadyen, Concord, was presented with a beautiful gold watch and chain in appreciation of his services in the office of Secretary.

The State Board of Health, at a meeting on January 23, elected Dr. A. J. Crowell, Charlotte, President, vice Dr. J. Howell Way, Waynesville, deceased.

Moore County Medical Society has re-elected Dr. A. A. McDonald, Jackson Springs, President; Dr. R. G. Rosser, Vass, Secretary.

St. Leo's Hospital, Greensboro, has been improved in the last few months. An additional operating room has been completed, increased laboratory facilities added, and much repair work has been done throughout the hospital.

Dr. Isaac J. Archer, Black Mountain, has been elected President of the Black Mountain Chamber of Commerce.

Dr. Chase P. Ambler, Asheville, has been re-elected High Priest and Prophet for the fourteenth successive

(Continued on page 44)

Combating Alkali Depletion in Respiratory Affections

Fantus, Ely, Synnott and others stress the importance of alkalinization in the prophylaxis and treatment of the common cold, influenza and pneumonia.

Alkali depletion is not confined to any one base. More rational than the giving of any single alkali is, therefore, the use of Kalak Water which contains the alkaline salts of calcium, magnesium, sodium and potassium in agreeable form for maintaining or restoring a normal tissue alkalinity.

Favor recovery and prevent complications by prescribing Kalak Water in sufficient dosage to keep the urine alkaline.

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Correct in composition and acidity, possesses all the qualities of a hospital formula. Easy to prepare in the home. The desired friable curd is an inherent characteristic. A demonstrated clinical success.

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In Canada KLIM and its allied products are made by Canadian Milk Products, Ltd., 374 Adelaide Street, West, Toronto.

(Continued from page 42)

year at the annual meeting of the Oasis Temple of the Mystic Shrine.

Dr. and Mrs. S. H. Cannady, Oxford, presented the Oxford Baptist Church with a gift of a $10,000 organ for the new building which will be completed soon.

Dr. John Symington, a returned medical missionary from India, has been elected whole-time Health Officer for Moore County for five months.

Dr. J. Rufus McCracken, Waynesville, and Miss Minnie B. Doar, Georgetown, S. C., were married recently.

Dr. Joseph Graham, Durham, has accepted a position as House Physician at the Hotel Roosevelt, Washington, D. C.

Deaths

Dr. George H. West, Newton, aged 78, died in a Statesville hospital in January.

Dr. T. F. Stevenson, Hickory, aged 58, died suddenly January 31.

Dr. Charles W. Sawyer, Elizabeth City, aged 70, died December 18.

Dr. William H. Houser, Cherryville, died January 7 following an illness of two months.

Dr. William Wetmore Gray, Tryon, aged 61, died November 7.

Dr. Thomas Frazier Reynolds, Canton, aged 55, died December 17 at the Meriwether Hospital, Asheville, of pneumonia.

Dr. Jacob Forney Abernathy, Murphy, aged 70, died November 25 as the result of injuries received in an automobile accident four years ago.

Dr. Ollen Lee Denning, Dunn, aged 65, died December 3 as the result of an injury received in an automobile accident.

Dr. Walter J. McLendon, Wadesboro, aged 80, died November 24 at the home of his son in Washington, D. C., of chronic myocarditis.

Dr. Claude M. Hughes, Cedar Grove, aged 58, died November 25.

OKLAHOMA

The annual meeting of the Oklahoma State Medical Association will be held in Tulsa, May 17-19.

Alfalfa County Medical Society has elected Dr. G. G. Harris, Helena, President; Dr. L. T. Lancaster, Cherokee, Secretary-Treasurer.

Bryan County Medical Society has elected Dr. R. A. Lively, Durant, President; Dr. R. E. Sawyer, Durant, Vice-President; Dr. James L. Shuler, Durant, Secretary-Treasurer.

Craig County Medical Society has elected Dr. C. F. Walker, Grove, President; Dr. W. M. Campbell, Vinita, Vice-President; Dr. W. R. Marks, Vinita, Secretary-Treasurer.

LeFlore County Medical Society has elected Dr. E. N. Fair, Heavener, President; Dr. J. B. Wear, Poteau, Secretary-Treasurer.

Oklahoma County Medical Society has elected Dr. A. B. Chase, Oklahoma City, President; Dr. S. N. Stone, Edmond, Vice-President; Dr. R. L. Murdoch, Oklahoma City, re-elected Secretary-Treasurer.

Okmulgee County Medical Society has elected Dr. G. Y. McKinney, Henryetta, President; Dr. V. W. Wallace, Morris, Vice-President; Dr. M. B. Glismann, Henryetta, Secretary-Treasurer.

Payne County Medical Society has elected Dr. L. A. Cleverdon, Stillwater, President; Dr. J. A. Martin, Cushing, Vice-President; Dr. L. A. Mitchell, Stillwater, Secretary-Treasurer.

Pontotoc County Medical Society has elected Dr. M. M. Webster, Ada, President; Dr. Alford R. Sugg, Ada, Vice-President; Dr. C. F. Needham, Ada, Secretary-Treasurer.

Tulsa County Medical Society has elected Dr. W. J. Trainor, Tulsa, President; Dr. Ralph A. McGill, Tulsa, Secretary.

Dr. Edwin J. Rose, formerly head of the U. S. Veterans' Hospital, Kansas City, Missouri, is now Superintendent of the Veterans' Hospital, Muskogee.

Osage County will have a full-time health unit sponsored by the State, County and the Federal Government. Dr. A. R. Chism, of Alabama, has been selected Director.

Anderson-Carson-Hughes Hospital was opened in December.

(Continued on page 46)

REST **RECREATION** **RECUPERATION**

Hot Springs National Park, Arkansas

"America's National Health Resort"

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The attention of the American Medical Profession is invited to the great benefits to be derived from the use of the radio-active waters of Hot Springs in the treatment of diseases where rapid elimination is desired such as, arthritis, neuritis, malaria, affections of the skin and other diseases resulting from toxemias and microbic infection.

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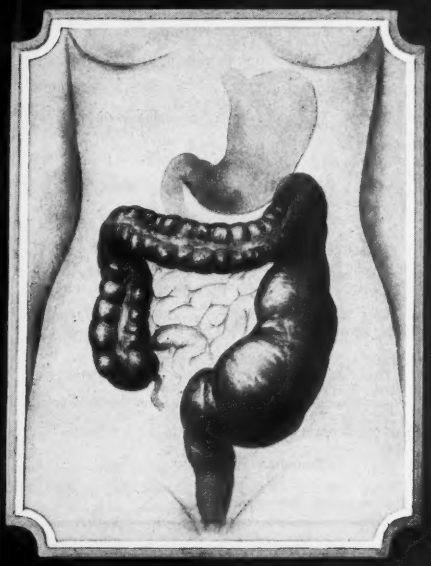

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Separate enlargements of this engraving and "Habit Time" mailed free on request.

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Normal peristalsis is more easily restored when proper fecal consistency is maintained. Authorities who study atonic constipation urge the importance of aiding weakened and distended muscles in their efforts to effect elimination.

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—is an emulsion of mineral oil and agar agar in which the oil is held in very small particles, permitting even diffusion with intestinal contents.

Petrolagar with Phenolphthalein, No. 2 (red label), in which there is a phenolphthalein content of 32/100 of 1%, is preferred by many physicians in the beginning treatment of obstinate constipation cases.

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(Continued from page 44)

Dr. T. B. Coulteer and Miss Eleanor Howard, both of Tulsa, were married December 23.

Dr. Clarence Salee Summers and Miss Minnie May Sweets, both of Tulsa, were married December 24.

Dr. Don Horatio O'Donoghue, Oklahoma City, and Miss Ragnhild Christensen, Storm Lake, Iowa, were married January 4.

Deaths

Dr. James Charles Willard Bland, Tulsa, aged 69, died in Oklahoma Hospital, Tulsa, January 2.

Dr. William Porter Mills, Claremore, aged 54, died October 3 of carcinoma of the stomach.

Dr. Kiah Rix Rone, Elk City, aged 63, died December 2 at Hammon of heart disease.

Dr. Alberto M. Sherburne, Cordell, aged 81, died October 15 of carcinoma of the stomach.

Dr. Calvin J. Floyd, Durant, aged 66, died recently of nephritis.

Dr. John Edgar Locke, Picher, aged 66, died May 27 at the Freeman Hospital, Joplin, Missouri, of carcinoma of the stomach.

Dr. James Harvey Hargrave, Ardmore, aged 69, died October 2 of heart disease.

SOUTH CAROLINA

The annual meeting of the South Carolina State Medical Association will be held in Columbia, April 17-19.

Columbia Medical Society has elected Dr. J. A. Dillard, Columbia, President; Dr. O. B. Mayer, Columbia, Secretary.

Charleston County Medical Society has elected Dr. H. P. Jackson, Charleston, President; Dr. W. Atmar Smith, Charleston, Secretary.

The South Carolina Pediatric Association met in Spartanburg, January 13. At this meeting the Society reorganized and efforts will be made to increase the membership.

Deaths

Dr. Charles Pons Aimar, Charleston, aged 54, died December 1 of coronary thrombosis.

Dr. B. R. Brown, Gaffney, aged 60, died December 16 of heart disease.

Dr. John Henry Miller, Cross Hill, aged 70, died suddenly December 15 of heart disease.

TENNESSEE

The annual meeting of the Tennessee State Medical Association will be held in Nashville, April 10-12.

Blount County Medical Society has elected Dr. B. E. DeLozier, Maryville, President; Dr. K. A. Bryant, Maryville, Vice-President.

Bradley County Medical Society has elected Dr. J. F. Gilbert, Cleveland, President; Dr. W. H. Sullivan, Cleveland, Vice-President; Dr. E. R. Ferguson, Cleveland, Secretary-Treasurer.

Campbell County Medical Society has elected Dr. W. B. Rose, Lafollette, President; Dr. A. L. Lawson, Elk Valley, Vice-President; Dr. F. A. McClintock, Newcomb, Secretary-Treasurer.

Davidson County Medical Society has elected Dr. Robert Sullivan, Nashville, President; Dr. J. O. Manier, Nashville, Vice-President; Dr. Sam P. Bailey, Nashville, Secretary-Treasurer.

Dyer County Medical Society has elected Dr. J. D. Brewer, Dyersburg, President; Dr. W. P. Watson, Dyersburg, Vice-President; Dr. W. W. Holland, Dyersburg, Secretary-Treasurer.

Hamblen County Medical Society has elected Dr. O. R. Tomlinson, Tate Springs, President; Dr. W. E. Howell, Morristown, Vice-President; Dr. S. M. Ryburn, Morristown, Secretary-Treasurer.

Hamilton County Medical Society has elected Dr. E. W. Patton, Chattanooga, President; Dr. J. H. Revington, Chattanooga, Vice-President; Dr. S. F. McIntosh, Chattanooga, Secretary-Treasurer.

Hardin -Lawrence - Lewis - Perry - Wayne Counties Medical Societies have elected Dr. H. C. Boyd, Waynesboro, President; Dr. W. E. Farris, Dr. E. B. Walker, Savannah, Dr. W. H. Neal, Lawrenceburg, Dr. G. N. Springer, Hohenwald, and Dr. O. A. Kirk, Linden, Vice-Presidents; Dr. J. W. Danley, Lawrenceburg, Secretary-Treasurer.

Henderson County Medical Society has elected Dr.

(Continued on page 48)

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is simple for the physician to prescribe, yet no physician ever refuses to prescribe it on account of its simplicity; its simplicity, on the contrary, is one of *Breast Milk's* many advantages.

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DUODENAL TUBES
Sizes 12 to 20 French even sizes
Price $2.00
I. L. LYONS & COMPANY, LIMITED
NEW ORLEANS, LA.

(Continued from page 46)

C. E. Bolen, President; Dr. W. I. Howell, Lexington, Secretary.

Knox County Medical Society has elected Dr. Robert G. Reaves, Knoxville, President; Dr. Tom R. Barry, Knoxville, Vice-President; Dr. Jesse C. Hill, Knoxville, Secretary-Treasurer.

Maury County Medical Society has elected Dr. C. D. Walton, Mt. Pleasant, President; Dr. J. A. Edwards, Columbia, and Dr. Watt Yeiser, Columbia, Vice-Presidents; Dr. W. K. Sheddan, Columbia, Secretary-Treasurer.

Memphis and Shelby County Medical Society has elected Dr. E. E. Francis, Memphis, President; Dr. J. J. Huddleston, Memphis, Vice-President; Dr. A. F. Cooper, Memphis, Secretary.

Montgomery County Medical Society has elected Dr. M. L. Hughes, Clarksville, President; Dr. M. L. Shelby, Clarksville, Vice-President; Dr. H. A. Nesbit, Clarksville, Secretary-Treasurer.

Roane County Medical Society has elected Dr. T. L. Bowman, Rockwood, President; Dr. W. W. Hill, Harriman, Vice-President; Dr. G. E. Wilson, Rockwood, Secretary-Treasurer.

Rutherford County Medical Society has elected Dr. B. N. White, Murfreesboro, President; Dr. A. N. Gordon, Fosterville, Vice-President; Dr. O. G. Nelson, Secretary-Treasurer.

Washington County Medical Society has elected Dr. C. H. Kyker, Johnson City, President; Dr. H. A. Willis, Yemasee, Vice-President; Dr. Ward Friberg, Johnson City, Secretary-Treasurer.

Williamson County Medical Society has elected Dr. W. C. Williams, Franklin, President; Dr. J. B. Core, Bethesda, Vice-President; Dr. K. S. Howlett, Franklin, Secretary-Treasurer.

The new addition to the U. S. Veterans' Hospital No. 88, Memphis, is under construction at a cost of approximately $80,000.

A new three-unit hospital is being erected at Johnson City by Dr. W. C. Goss. When completed, it will accommodate forty patients and will be completely equipped, including x-ray facilities.

(Continued on page 50)

CLASSIFIED ADVERTISEMENTS

WANTED—Place in hospital as x-ray technician. Excellent references. Wayne Smith, 1411 South Gordon Street, S. W., Atlanta, Ga.

WANTED—Position as technician in microscopical and chemical laboratory or in physician's office. Can do stenographic work, type and light bookkeeping. Address Box 606, Hattiesburg, Mississippi.

WANTED—An experienced psychiatrist as assistant in Glenwood Park Sanitarium, Greensboro, N. C. Address W. C. Ashworth, M.D., Owner, Greensboro, N. C.

TO THE MEDICAL PROFESSION: We are filling a long felt want by conducting a training class teaching blood counts, urinalyses, sputum and feces examinations, also basal metabolism readings. We will gladly furnish you with competent office assistants trained in such laboratory procedures as you may require. Our classes are made up of stenographers, bookkeepers, registered nurses and clerks. Send us your office assistant for training. Write or telephone for full information. Dial 3-3598. John V. Mix, Director, Alabama Pathological Laboratory, 1005 Martin Building, Birmingham, Ala.

FOR SALE, TRADE OR LEASE—The Louisiana Hot Wells Sanitarium Company, properties, Boyce, Louisiana. Long established reputation and business for health and recreation. Highest testimonials and references. Especially suited to qualified M.D., or business man or company. Rare opportunity. Extensive possibilities. Full particulars furnished. Address Dr. Clarence Pierson, President, Alexandria, Louisiana.

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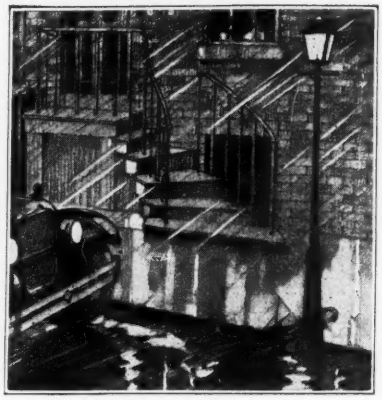
The Season of Frequent Weather Changes



INCLEMENT weather conditions greatly increase the host of sufferers from colds, rheumatic affections, bronchitis, influenza and pneumonia. The relief of the accompanying headache, pain in the limbs and other discomfort, as well as the reduction of fever, is promptly produced by the dependable, non-narcotic analgesic and antipyretic

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THE action of Pyramidon extends over many hours, a single dose often sufficing for a whole day. Pyramidon is notably free from untoward side-effects.

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GEO. W. BRADY & CO.
780 So. Western Ave.
CHICAGO

(Continued from page 48)

Dr. Lloyd M. Graves, Memphis, is the new Superintendent of the City Board of Health.

Dr. C. G. Lyons, Knoxville, has re-entered the Government Health Department and is stationed in Chicago.

J. E. Shouse is the new Superintendent of the Knoxville General Hospital, Knoxville, succeeding J. H. Mauney, who resigned to devote his time to the enlarged Riverside-Fort Sanders Hospital, Knoxville.

Deaths

Dr. John D. Todd, McKenzie, aged 71, died December 11 of pneumonia.

Dr. William M. Bright, Chuckey, aged 40, died November 29.

Dr. Paul Ruble, aged 40, died at his home in Green County December 14 of heart disease.

Dr. John Nathaniel Thaxton, Nashville, aged 70, died December 1 of lobar pneumonia.

Dr. Samuel Thompson Hardison, Lewisburg, aged 86, died December 31 of senility and influenza.

Dr. Williams Hill Ryan, Moltke, aged 61, died December 8 at Fort Henry of carcinoma of the bladder.

Dr. Henry A. Parrott, aged 89, died at his home in Sullivan County December 24.

Dr. Henry Alfred Sanders, Nashville, aged 82, died December 19 of bronchopneumonia following influenza.

TEXAS

The annual meeting of the Texas State Medical Association will be held in Galveston, May 7-10.

Bee County Medical Society has elected Dr. L. E. Parr, Beeville, President; Dr. Houston Neeley, Beeville, Vice-President; Dr. H. E. Lancaster, Beeville, Secretary-Treasurer.

Bell County Medical Society has elected Dr. J. W. Pittman, Belton, President; Dr. L. R. Talley, Temple, Vice-President; Dr. M. W. Sherwood, Temple, Secretary.

Bexar County Medical Society has elected Dr. C. E. Scull, San Antonio, President; Dr. Mary C. Harper,

(Continued on page 52)

Laboratories of

Drs. Bunce, Landham and Klugh

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George F. Klugh, M.D., Director, Laboratory of Clinical Pathology
Jackson W. Landham, M.D., Director, Laboratory of Radiology (X-Ray and Radium)

These laboratories are equipped for making every test of clinical value in the diagnostic study of medical and surgical cases. Only standardized methods and technique are used.

In addition to the diagnostic study of cases there are adequate facilities for the x-ray and radium treatment of conditions in which these forms of treatment are indicated.

Containers for pathological specimens and information in reference to x-ray and radium work furnished upon request.

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YOU CAN now change the intestinal flora in "the Battle Creek Way" with the new colon food, Lacto-Dextrin.

This is not a culture or a milk, but *a food product with a therapeutic effect.*

This new development provides a definite and reliable means of changing the intestinal flora.

Used as a routine in the Battle Creek Sanitarium, Lacto-Dextrin is now available for your practice in any good prescription pharmacy.

Write for the interesting book which tells what changing the intestinal flora means, what it does, and how to accomplish it.

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To secure a change in the Flora it is often desirable to promote increased peristalsis. As a valuable aid, Psylla gives bland, non-irritating bulk and lubrication in the intestine. We will gladly send you a sample of this new and effective agent. The name

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(Continued from page 50)

San Antonio, Vice-President; Dr. J. M. Venable, San Antonio, Secretary.

Caldwell County Medical Society has elected Dr. H. Clay Nichols, Luling, President; Dr. F. C. Luckett, Fentress, Vice-President; Dr. A. A. Ross, Jr., Lockhart, Secretary.

Cameron County Medical Society has elected Dr. R. E. Utley, Harlingen, President; Dr. R. H. Eisaman, Brownsville, Vice-President; Dr. Henry Hoskins, Harlingen, Secretary-Treasurer.

Childress - Collingsworth - Donley - Hall Counties Medical Society has elected Dr. F. A. White, Childress, President; Dr. J. H. Jernigan, Childress, Vice-President for Childress County; Dr. E. W. Moss, Wellington, Vice-President for Collingsworth County; Dr. B. L. Jenkins, Clarendon, Vice-President for Donley County; Dr. J. A. Odom, Memphis, Vice-President for Hall County; Dr. Clifton E. Hich, Wellington, Secretary.

Collin County Medical Society has elected Dr. J. D. Burt, Farmersville, President; Dr. W. R. Mathers, McKinney, Vice-President; Dr. P. D. Robason, McKinney, Secretary.

Dallas County Medical Society has elected Dr. J. S. Calhoun, President; Dr. Wayne T. Robinson, Vice-President; Dr. W. W. Fowler, Secretary.

Eastland County Medical Society has elected Dr. C. H. Carter, Eastland, President; Dr. H. B. Tanner, Eastland, Vice-President; Dr. P. M. Kuykendall, Desdemona, Secretary.

Ellis County Medical Society has elected Dr. C. W. McBurnett, Palmer, President; Dr. Herbert Donnell, Waxahachie, Vice-President; Dr. E. F. Gough, Waxahachie, Secretary.

Falls County Medical Society has elected Dr. F. A. York, Marlin, President; Dr. H. S. Garrett, Marlin, Vice-President; Dr. M. A. Davison, Marlin, Secretary, re-elected.

Galveston County Medical Society has elected Dr. Edward Randall, Galveston, President; Dr. George T. Lee, Galveston, Secretary.

Grayson County Medical Society has elected Dr. S. D. Moore, Van Alstyne, President; Dr. Arthur Gleckler, Denison, Vice-President; Dr. W. A. Lee, Denison, Secretary.

Hale-Floyd-Briscoe-Swisher Counties Medical Society has elected Dr. E. F. McClendon, Plainview, President; Dr. J. W. Stevens, Tulia, Vice-President; Dr. E. O. Nichols, Plainview, Secretary.

Harris County Medical Society has elected Dr. B. T. Vanzant, Houston, President; Dr. B. F. Smith, Houston, Vice-President; Dr. Fred R. Lummis, Houston, Secretary.

Harrison County Medical Society has elected Dr. Joe C. Carter, Marshall, President; Dr. C. A. Wyatt, Marshall, Vice-President; Dr. F. S. Littlejohn, Marshall, Secretary.

Hidalgo County Medical Society has elected Dr. C. J. Martin, Rio Grande City, President; Dr. L. J. Montague, Edinburg, Vice-President; Dr. J. A. Wharton, McAllen, Secretary.

Hunt County Medical Society has elected Dr. J. J. Handley, Greenville, President; Dr. E. C. Bills, Quinlan, Vice-President; Dr. E. P. Goode, Greenville, Secretary.

Hutchinson County Medical Society has elected Dr. Herman Ramming, Harlingen, President; Dr. B. F. Clutter, El Paso, Vice-President; Dr. J. B. White, Marlin, Secretary.

Jones County Medical Society has elected Dr. A. D. McReynolds, Stamford, President; Dr. N. H. Bickley, Stamford, Vice-President; Dr. C. H. Hendry, Stamford, Secretary.

Lamar County Medical Society has elected Dr. J. L. Hammond, Paris, President; Dr. M. A. Walker, Paris, Vice-President; Dr. A. W. Roberts, Paris, Secretary.

Mitchell County Medical Society has elected Dr. T. A. Martin, Loraine, President; Dr. T. H. Barber, Colorado, Vice-President; Dr. T. J. Ratliff, Colorado, Secretary.

Montague County Medical Society has elected Dr. Clarence Moore, St. Jo, President; Dr. J. E. Fleming, St. Jo, Vice-President; Dr. R. T. Spencer, St. Jo, Secretary.

McCulloch County Medical Society has elected Dr. William Land, Lohn, President; Dr. Conrad Frey, Melvin, Vice-President; Dr. Oscar Huff, Mason, Secretary.

Navarro County Medical Society has elected Dr. H. H. Panton, Corsicana, President; Dr. W. W. Halbert, Corsicana, Vice-President; Dr. Dan B. Hamill, Corsicana, Secretary.

(Continued on page 54)

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The Bureau of Standards at Washington has made many tests of Ultra Violet producing lamps, and has come forth with the following statement: "Of all the artificial illuminants tested, the Carbon Arc lamp is the nearest approach to sunlight."—Letter Circular LC-225, March 5, 1927.

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(Continued from page 52)

Nueces County Medical Society has elected Dr. George Wyche, Robstown, President; Dr. Jerome Nast, Corpus Christi, Vice-President; Dr. M. J. Perkins, Corpus Christi, Secretary.

Orange County Medical Society has elected Dr. R. E. Barr, Orange, President; Dr. C. E. Phillips, Vice-President; Dr. F. W. Lawson, Secretary.

Palo Pinto County Medical Society has elected Dr. A. J. Evans, Mineral Wells, President; Dr. J. H. McCracken, Mineral Wells, Vice-President; Dr. C. B. Williams, Mineral Wells, Secretary.

Runnels County Medical Society has elected Dr. J. W. Macune, Ballinger, President; Dr. Fred Tinkle, Winters, Vice-President; Dr. R. H. Henslee, Winters, Secretary.

Smith County Medical Society has elected Dr. Albert Woldert, Tyler, President; Dr. E. H. Vaughn, Tyler, Vice-President; Dr. C. E. Willingham, Tyler, Secretary.

Tarrant County Medical Society has elected Dr. Frank D. Boyd, Fort Worth, President; Dr. O. E. Veatch, Fort Worth, Vice-President; Dr. F. L. Snyder, Fort Worth, Secretary.

Titus County Medical Society has elected Dr. J. M. Ellis, Mt. Pleasant, President; Dr. J. S. Taylor, Mt. Pleasant, Vice-President; Dr. S. R. Crabtree, Mt. Pleasant, Secretary.

Tom Green County Medical Society has elected Dr. C. T. Womack, San Angelo, President; Dr. Harlan Horney, San Angelo, Vice-President; Dr. J. S. Hixson, San Angelo, Secretary; Dr. H. R. Wardlaw, San Angelo, Treasurer.

Van Zandt County Medical Society has elected Dr. V. Bascom Cozby, Grand Saline, President; Dr. Marion L. Cox, Canton, Vice-President; Dr. D. Leon Sanders, Wills Point, Secretary.

Washington County Medical Society has elected Dr. O. F. Schoenvogel, Brenham, President; Dr. R. E. Nicholson, Brenham, Vice-President; Dr. Arthur Becker, Brenham, Secretary, re-elected.

Williamson County Medical Society has elected Dr. W. L. Helms, Taylor, President; Dr. C. C. Foster, Granger, Vice-President; Dr. W. G. Pettus, Georgetown, Secretary.

Wichita County Medical Society has elected Dr. L. McKechney, Wichita Falls, President; Dr. O. T. Kimbrough, Wichita Falls, Vice-President; Dr. Austin F. Leach, Wichita Falls, Secretary.

Wise County Medical Society has elected Dr. P. C. Funk, Bridgeport, President; Dr. D. C. Riley, Alvord, Vice-President; Dr. P. J. Fullingim, Decatur, Secretary.

North Texas Medical Association held its semi-annual meeting in Fort Worth December 6-7. Dr. D. L. Bettison, Dallas, was elected President; Dr. W. C. Tenery, Waxahachie, Vice-President; Dr. T. C. Strickland, Greenville, Secretary-Treasurer.

Cotton Belt Surgeons' Association held its annual meeting in Texarkana, December 6. Dr. J. H. Dorman, Dallas, was elected President; Dr. F. E. Baker, Stamps, Arkansas, Vice-President for Arkansas; Dr. A. M. Cleveland, Fort Worth, Vice-President for Texas; Dr. John L. Scales, Shreveport, Louisiana, Vice-President for Louisiana; Dr. H. B. Jacobson, Memphis, Tennessee, Vice-President for Tennessee; Dr. W. C. Dieckman, Dexter, Missouri, Vice-President for Missouri; Dr. C. F. Melcemj, East St. Louis, Illinois, Vice-President for Illinois.

Nacogdoches will have a new City Hospital which will cost $50,000. The City has been without a hospital since the old North Street Hospital closed six months ago.

Dallas will soon have a hospital and clinic which will be devoted entirely to the treatment of diseases of the eye, ear, nose and throat. It will be called the Dallas Eye, Ear, Nose and Throat Hospital and Clinic. The cost of the site and equipment has been estimated at something more than $100,000. Drs. W. D. and J. Guy Jones are the immediate sponsors of the project, and will put up the greater part of the money.

Corpus Christi will have a new hospital which will be built at an estimated cost of $35,000. In addition to offices, waiting rooms and an operating room, there will be accommodation for 28 patients.

Dr. Irving McNeil, El Paso, has presented bound volumes of The Journal of the American Medical Association for twenty years to the El Paso County Medical Society.

Dr. J. E. Wright, Alpine, has been chosen President of the Brewster County Chamber of Commerce.

Dr. W. Wallace Ralston, Houston, has been elected

(Continued on page 56)

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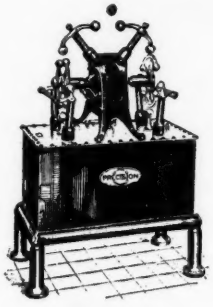
PRECISION



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(Continued from page 54)

President of the Texas Ophthalmological and Otolaryngological Society.

V. M. Duckworth is the new Superintendent of the Mercedes General Hospital, Mercedes.

Deaths

Dr. Dabney Berrey, San Antonio, aged 67, died November 1 of angina pectoris.

Dr. Robert S. Payne, Dallas, aged 53, died December 12 at a local hospital of injuries received in an automobile accident.

Dr. James Monroe Dollar, Cameron, aged 87, died November 4 of senility.

Dr. John M. Fly, Leesville, aged 78, died suddenly November 12 of heart disease.

Dr. William Avory Howard, Waco, aged 73, died November 21 at the Providence Sanitarium of pleuropneumonia.

VIRGINIA

The Church Hill Medical Society of Richmond has elected Dr. William R. Weisiger, Richmond, President; Dr. J. G. Trant, Richmond, Vice-President; Dr. R. S. Faris, Richmond, Secretary-Treasurer, reelected.

Norfolk County Medical Society has elected Dr. N. G. Wilson, Norfolk, President; Dr. Lockburn B. Scott, Norfolk, Secretary.

Pittsylvania County and Danville Medical Society has elected Dr. L. E. Fuller, Witt, President; Dr. H. J. Langston, Danville, Vice-President; Dr. J. A. Hawkins, Danville, Secretary-Treasurer, reelected.

Richmond Academy of Medicine has elected Dr. James H. Smith, President; Dr. M. L. Anderson and Dr. Paul W. Howle, all of Richmond, Vice-Presidents. The Secretary-Treasurer will be elected by the Board of Trustees.

Rockbridge County Medical Society has reelected the present officers as follows: Dr. E. P. Tompkins, President; Dr. C. H. Davidson and Dr. Jos. Seebert, Vice-Presidents; Dr. H. L. Mitchell, Secretary-Treasurer, all of Lexington.

Southside Virginia Medical Association has elected Dr. W. D. Prince, Stony Creek, President; Dr. R. H. Manson, McKenney, Dr. J. L. Hamner, Mannsboro, Dr. W. C. Webb, Disputanta, and Dr. J. A. Grizzard, Drewryville, Vice-Presidents; Dr. R. L. Ralford, Franklin, Secretary-Treasurer, reelected.

Warren, Rappahannock and Page Medical Society has elected Dr. Virgil Hammer, Luray, President; Dr. Reginald Munson, Linden, Vice-President; Dr. George H. Long, Luray, Secretary-Treasurer.

The Medical Society of the University of Virginia has been organized by the members of the medical teaching staff and hospital of the University of Virginia. It is the outgrowth of the medical journal club which has been meeting regularly for about twenty years. Dr. William E. Bray is President, and Dr. J. Staige Blackford, Secretary.

The Virginia State Health Association at its meeting in Suffolk, January 4, elected Dr. C. B. Ransome, Roanoke, President; Dr. C. H. Dawson, Suffolk, and Dr. P. M. Chichester, Vice-Presidents; Dr. Powhatan S. Schenck, Norfolk, Secretary-Treasurer, reelected.

The Richmond Pediatric Society has elected Dr. T. D. Jones, Richmond, President; Dr. John S. Weitzel, Richmond, Vice-President; Dr. W. Ambrose McGee, Richmond, Secretary-Treasurer, reelected.

The Richmond Eye, Ear, Nose and Throat Society has elected Dr. R. E. Mitchell, President; Dr. W. S. Hodnett, Vice-President; Dr. F. J. Lee, Secretary-Treasurer, reelected, all of Richmond.

It is announced that the new hospital being erected at Nassawadox, near the border of Accomac and Northampton Counties, is to be opened about July 1.

Dr. Harvey Coghill, Richmond, will succeed Dr. George H. Preston, resigned, as Director of the Children's Memorial Clinic. Dr. Basil B. Jones will continue as consulting pediatrician. Dr. W. E. Chapin is in charge of the pediatric work, and Dr. Helen Langner is in charge of the psychiatric work.

Dr. C. H. Iden, Berryville, has been elected Junior Warden of Treadwell Lodge A. F. and A. M.

Dr. Philip W. Boyd, Winchester, has been elected President of the Virginia State Board of Medical Examiners.

(Continued on page 58)

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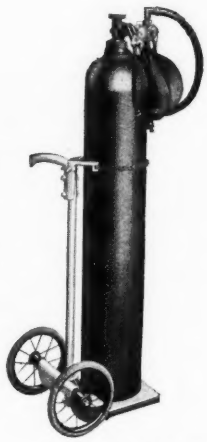

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CENTRIFUGES

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(Continued from page 56)

Dr. Richard P. Bell, Staunton, has been elected President of the Staunton and Augusta Alumni Association of the University of Virginia.

Dr. O. B. Darden, Richmond, has been elected President of the Duke University Alumni Association of Richmond, Petersburg and vicinity.

Dr. B. B. McCutchan, Clifton Forge, has been elected a Director of the Kiwanis Club.

Dr. Wilkins Jeffries Ozlin, Dundas, and Miss Mary Adams Smallwood, Roanoke, were married December 21.

Dr. John Thomas Daves, Danville, and Miss Mary Weldon Kerfoot, Shawnee, Oklahoma, were married December 13.

Dr. John Arnold Board, Altavista, and Miss Mamie Bowman, Lynchburg, were married December 14.

Dr. John Robert Bagby and Mrs. Perle Stearnes Robinson, both of Newport News, were married December 10.

Dr. William Richard Morton and Miss Myrtle Moore Granger, both of Richmond, were married December 20.

Deaths

Dr. Presley Worthington Morehead, Clarendon, aged 67, died November 29 at Staunton of toxic myocarditis.

Dr. Morton Eldridge Hundley, Martinsville, aged 52, died at Saint Moritz, Switzerland, following an illness of several days with pneumonia. He had recently married and had gone to Europe to spend the winter months.

Dr. Charles H. Stokes, Capahosic, aged 54, died December 19 of heart disease.

WEST VIRGINIA

The annual meeting of the West Virginia State Medical Association will be held at Fairmont, May 22-24.

Cabell County Medical Society has elected Dr. Henry

(Continued on page 60)

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Five Piece Matched Suite Physicians Office Furniture---

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CORPUS LUTEUM AMPULES	SOLUTION OF EPINEPHRIN (1-1000)
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(Continued from page 58)

D. Hatfield, President; Dr. J. E. Hubbard, Huntington, Vice-President; Dr. I. I. Hirschman, Huntington, Secretary; Dr. R. M. Bobbitt, Huntington, Treasurer.

Monongalia County Medical Society has elected Dr. H. V. King, Morgantown, President; Dr. T. Jud McBee, Morgantown, Vice-President; Dr. G. R. Maxwell, Morgantown, Secretary; Dr. W. C. Kelly, Morgantown, Treasurer.

McDowell County Medical Society has elected Dr. S. A. Daniels, Welch, President; Dr. Rush Lambert, Coalwood, Vice-President; Dr. A. G. Rutherford, Welch, Secretary; Dr. H. G. Camper, Welch, Treasurer.

Ohio County Medical Society has elected Dr. J. W. Gilmore, Wheeling, President; Dr. H. W. Bond, Wheeling, Secretary.

Preston County Medical Society has elected Dr. R. D. Harman, Kingwood, President; Dr. Fred A. Brown, Terra Alta, Vice-President; Dr. L. H. Lewis, Kingwood, Secretary-Treasurer.

Raleigh County Medical Society has elected Dr. George W. Johnson, McAlpin, President; Dr. W. D. Simmons, Slab Fork, Secretary-Treasurer.

Dr. William Ross Cameron has been appointed full-time Health Officer for Berkeley County with headquarters at Martinsburg.

Dr. Elizabeth I. Parsons, Marietta, Ohio, has been appointed Director of the State Hygienic Laboratory, succeeding Dr. Charles E. Gabel, whose term expired January 1.

Dr. Henry F. Spillers recently resigned as Superintendent of the Ohio Valley General Hospital, Wheeling.

Dr. Joseph A. Striebich, Moundsville, has been elected Chief of the Staff of the Reynolds Memorial Hospital.

Deaths

Dr. Elmer Lee Woodford, Belington, aged 60, died suddenly December 28.

Dr. Nehemiah Atwood Haning, Wheeling, aged 56, died December 9 at a local hospital of gangrenous appendicitis.

Dr. Gregory Ackerman, Wheeling, aged 75, died January 16.

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Nutritional disturbances such as Marasmus, Decomposition, Atrophy, Intoxication, etc., are usually *the end results* of mild beginning fermentative diarrhoeas. Fermentative diarrhoeas are in turn the end results of improper carbohydrate in the infant's intestines.

Carbohydrate, a portion of which is not absorbed rapidly enough, is attacked by the acid-forming bacteria which results in a diarrhoea.

This form of nutritional disturbance is often corrected in its early stages by the administration of Mead's Casec (calcium caseinate) the principal protein of cow's milk. This is in accordance with the Finkelstein theory that protein inhibits the growth of the acid-forming organisms.

But as a measure of safety in infant feeding, the use of Mead's Dextri-Maltose in cow's milk and water formulas will do much toward preventing the occurence of a fermentative diarrhoea. This is because of its greater assimilation limits (7.7 as against 3.1 and 3.6 for lactose and cane sugar respectively).

A carbohydrate so easily assimilated is, when used with cow's milk and water formulas, the greatest assurance against nutritional disturbances caused by sugar intolerances. For this reason it is used with good results in feeding the majority of well infants, and for the same reason it is invariably the clinical indication in cases of infants with weakened powers of digestion,—those manifesting *the end results* of unsuitable carbohydrate additions to their diets.

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